PULP & PAPER

NOVEMBER 1955

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page 67

Useful Ideas for South Supts.
page 74

New Brunswick Woods Policy
page 91

UNIFORMITY ... of KAOLIN Quality

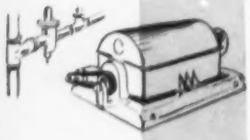
ESSENTIAL REQUIREMENT for paper clays

CONSTANT OBJECTIVE of Georgia Kaolin Company

RESULT of Georgia Kaolin's unequaled experience and modern facilities for kaolin production.

SELECTIVE, ALL-WEATHER MINING: Backed by the largest clay reserves in North America, Georgia Kaolin mining is planned up to five years in advance. Unique, mobile equipment enables clay to be pumped to processing plant in slurry form. Mining schedules are maintained despite weather conditions.

LARGE BLENDING AND STORAGE FACILITIES: With a capacity of over 7000 tons of dry clay in suspension, Georgia Kaolin storage tanks allow flexibility in crude clay blending and assure uninterrupted, uniform processing operations.



ADVANCED PROCESSING METHODS: Precise, rapid, and continuous classification of clays by particle size is accomplished by patented processes utilizing centrifugal forces thousands of times greater than gravity. Automatically controlled bleaching and drying equipment provides close control of color and moisture characteristics.

QUALIFIED TECHNICAL SUPERVISION: Georgia Kaolin operations are guided by a staff of nearly fifty full-time chemists and inspectors. Up to sixty-seven individual quality control tests are performed during the clay processing.

WORLD'S LARGEST KAOLIN PROCESSING PLANT, OPERATED BY GEORGIA KAOLIN COMPANY AT DRY BRANCH, GEORGIA

FOR MORE INFORMATION ON THE OUTSTANDING UNIFORMITY AND PROPERTIES OF GEORGIA KAOLIN PAPER CLAYS, WRITE OR PHONE TODAY.

GEORGIA KAOLIN COMPANY

433 North Broad Street, Elizabeth, N. J., Elizabeth 2-3770

King Size . . .

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KETCHIKAN PULP CO.

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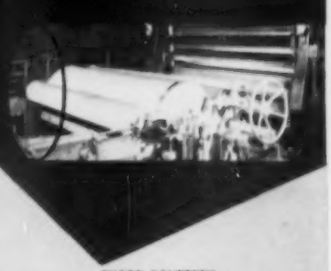

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are designed and
built to suit
YOUR
Production
Requirements.

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Paper Machine Builders Since 1837
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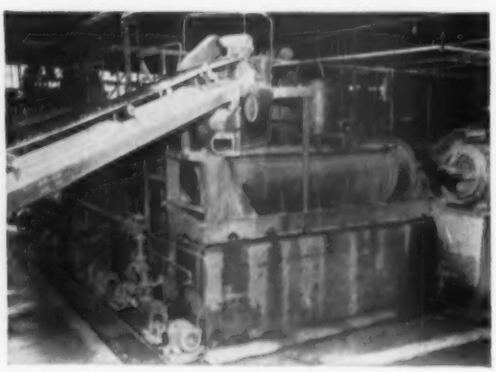
Progress at Huber:

Assures you of a steady supply of top quality clays



Here are two of the latest reasons why J. M. Huber Corporation has strengthened its position as the clay industry's leader in technical progress—and product uniformity.

1—New Dragline—This giant helps Huber maintain a steady supply of top quality clays in its storage silos—ready at all times for processing and blending to *your* requirements. It weighs more than 1,320,000 pounds; takes a 15-ton bite of clay in its 9-cubic yard scoop.

2—Viscontrol®—The patented pugmill process enables Huber to produce water-washed clays with uniform flow characteristics regardless of day-to-day variations at the mine.

Only Huber offers you a total combined range of products, methods and services without duplicate in the industry. Only Huber offers you a total range of production methods: spray, drum, rotary, tunnel dried; *plus* a total range of clays: air-floated, waterwashed, filler, coating; *plus* vast storage facilities and selective mining. No other clay producer in America matches Huber as the industry's prime source of supply... *Be sure with Huber.*

HUBER

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PULP & PAPER

VOLUME 29 NUMBER 12

November 1955

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PULP & PAPER

EDITORIAL PAGE

There's Too Much at Stake

Here's why this industry—No. 5 in U.S.A.—makes its plans for many years ahead. It must do so—there is too much at stake:

It has sales of over $9,000,000,000 a year.

Its investment in plant and property is about $7,000,000,000.

It uses 28,000,000 cords of wood in a year; value, $500,000,000.

It uses 8,000,000 tons of waste paper; value, $200,000,000.

Pulp and paper companies own 26,000,000 acres of land.

They lease another 2,000,000 acres, but also receive wood from thousands of woodlot owners.

Today there is more usable wood being grown for pulp mills than 25 years ago. Future wood supply is assured. New uses and markets for paper and pulp and a rising population assure its future.

At First Glance . . .

Last month was important in the publishing world as ABC Month, an occasion when the significance and value of membership in the Audit Bureau of Circulations is reassessed and spotlighted. PULP & PAPER'S membership in this unique, non-profit association—which is comprised of advertisers, advertising agencies and publications—is indicated by the familiar ABC symbol on the preceding page.

The right to display this ABC membership symbol has to be earned. PULP & PAPER first must prove that its circulation meets high standards of integrity—standards that imply responsibility to readers and mean full advertising value for advertisers.

The appearance of this highly prized ABC symbol not only offers proof to advertisers that their sales messages will reach a guaranteed number of readers in a logical position to buy the advertised products but is also recognition of a primary responsibility to the readers of PULP & PAPER who pay to get a needed, wanted publication.

Thus, this ABC symbol represents a pledge by PULP & PAPER to maintain and report true and correct circulation records in accordance with accepted rules and standards, for use as a measuring rod by advertisers and, at the same time, to devote continuing efforts toward a steadily improved editorial content to attract and hold its readers.

Sales Dept. is *Not* Whole Company—But—

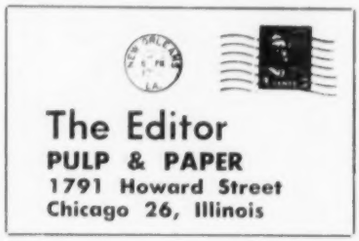
"The sales department is not the whole company, but the whole company is the sales department."

Some friends at Charmin Paper Mills called our attention to this statement in a company magazine of Giddings & Lewis Machine Tool Co., Fond du Lac, Wis.

Plenty of truth these days in that statement. Courtesies in a mill as well as outside, toward visitors and fellow townsmen, to salesmen and to customers, they all add up to a grand total that may have a lot to do with the red or black ink in a company's books.

What Makes a Nation Great

A nation is made great, not by its fruitful acres, but by the men who cultivate them; not by its great forests, but by the men who use them; not by its mines, but by the men who work them; not by its railways, but by the men who build and run them. America was a great land when Columbus discovered it; Americans have made it a great nation.—*Lyman Abbott*



READERS CORNER

No anonymous letters will be considered but names may be withheld if desired.

"It Beats Me . . . "

Your WORLD REVIEW NUMBER is very excellent. It beats me on how you keep on improving it each year as the latest one always seems to be at a point where it is near perfect.

KARL A. CLAUSON
President, Stora Kopperberg Corp.

"Remember Me to South"

Thanks so much for the story you wrote about my retirement.

I cherish my Southern contacts, especially those personnel of pulp and paper mills who accorded me such a gracious reception for many years.

The courtesies of competitors will also be remembered with pleasure.

If I have contributed, however so small, to the advancement and development of the Southern industry in my many years of travel in that area, the pleasure is all mine.

ROBERT C. STEWART
Retired Southern Rep., Shartle Bros.
(Now at—1001 Third St., Apt. 304, Santa Monica, Calif.)

"Commendable Idea"

On my return to New York from another trip to our mills in Sweden, your 1955 WORLD REVIEW NUMBER came to my attention. Your idea of publishing annually a review of the pulp and paper industry, particularly the information given with regard to world woodpulp supply, is most interesting and commendable.

N. R. JOHANESON
Cellulose Sales Co., Inc.

"Most Comprehensive"

I want to congratulate you on a splendid job and a most comprehensive study of the world pulp situation in your WORLD REVIEW NUMBER. I have enjoyed reading it and have learned a great deal in doing so.

W. T. WEBSTER
Vice President, National Container Corp.

Favorite Magazine

PULP & PAPER is still one of my favorite magazines. I often borrow a copy here to see what old friends in the paper industry are doing.

CHARLES Y. CAIN
Manager, Plastic Sales, Hooker Electrochemical Co.,
Niagara Falls, N.Y.
(Former head of Midwest Sales, including pulp and paper field)

SIMONDS ADDS A MIRROR-FINISH

...to make the cutting edge last!

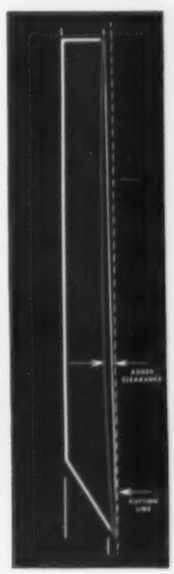
SIMONDS RED STREAK PAPER KNIVES

Only Simonds puts a micro-mirror finish on the all-important face side to give you a substantially *stronger* cutting edge. An edge that's keener, yet requires sharpening far less often.

Add to this, Simonds special face-side taper — *concave ground for added clearance* . . . and you know why Simonds Paper Knives give you freer, cleaner cutting, and more of it between sharpenings.

These two exclusive features of Simonds Paper Knives eliminate rubbing against stock, reduce knife wear — cut your cost of cutting.

Made of Simonds own S-301 Steel, you can bank on "Red Streak" Knives to give you long, trouble-free service. Many standard sizes are carried in stock by Simonds Distributors in all principal cities.



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STRICTLY PERSONAL

SOUTHERN NOTES

Perry New Medico At Sonoco; Burns is W. Va. Personnel Mgr.

ED. NOTE: The following field-written personal notes were gathered by two PULP & PAPER editors on a recent swing through Southeastern states, visiting mills.

DR. JOHN M. PERRY, JR., due congratulations as the new medical director at Sonoco Products. By now, Dr. Perry and his wife and four children are in residence at Hartsville, S. C. The doctor holds two degrees from U. of Oklahoma, was formerly a medical officer serving on Okinawa and in the Philippines, and on the staff of Letterman General Hospital and Mardigan General Hospital. . . . **A. LINCOLN BURNS** is new personnel manager at West Virginia's Charleston mill. Other recent promotions at West Virginia: **WILLIAM W. STUART**, who has taken over the reins as Commercial Manager and **A. E. MOORER, JR.**, former Personnel Manager, now new Market Analyst. . . . **A GROUP OF HEARTY SOULS** (with pix attached) is this bunch of students from New York State College of Forestry. Hailing from all over America and Europe, they take on the look of the United Nations. On a swing through the South with stops at WestVaCo, IP, Gair and Union Bag mills, they braved wet weather to look over West Virginia's woodlands near Summerville, S. C., got stuck in the mud for two hours. Prof. **SVEN O. HEIBERG**, left, professor of silviculture, was head man on the tour. Here, **R. C. (DUKE) HAYNES**, Manager of WestVaCo's Woodlands Management, hosts the group at lunch after their tussle with the mud. From Prof. Heiberg they are: **JOE WILEY**, W. Va.; **GENE NAMKOONG**, Japan; **GENE BALON**, Lackawanna, N. J.; **HENRY O. BLESSING**, Poughkeepsie, N. Y.; **ROBERT VAN AKEN**, Roxbury, N. Y.; **DICK KNIGHT**, England; **NEWAD PETROVIC**, Yugoslavia; **TEODORA DELIZIO**, Philippines; **DONALD LAWTON**, Fairhaven, N. J.; **BILL AEUSCHENER**, N. Y. C.; **A. MAURAY ANDERSON**, Nova Scotia; **MANUEL VAN NUROP**, Netherlands; **DUKE HAYNES**, WestVaCo; **W. A. SEXTON**, WestVaCo. . . . **GUS HENRY**, Asst. Pulp Mill Supt. at Riegel Carolina Corp., thumbed a ride home from the mill with two P&P editors and in his hurry to get into his new house inadvertently misdirected them to their next port o' call. Production Manager **J. D. DAILY** straightened them out or they would have journeyed to Raleigh by way of Jacksonville, Fla. . . . **BOB WHELESS**, bleach plant supt. at Camp Mfg. Co., is building his own one-story contemporary home in Franklin and hopes to move in soon. Said Bob: "It's modern . . . very modern." . . . Incidentally, nationwide attention is focusing on Camp's **DELLIE C. COTTON, JR.**, chief clerk, also in charge of wood procurement. Dellie recently turned professional movie-maker and his two 8 mm color movies, "The Story of Ruth" and "The Story of Saul and David," which he produced for less than $100 each with a cast of 100 Sunday School children, have gained much attention. Parents and other adults handled costumes and props, enabling low cost. This hobby is paying off handsomely for Dellie, who says such undertakings are deterrents for juvenile delinquency. He starts No. 3 soon: "The Story of Joseph." . . . **COL. WALTER C. SHORTER's** son **WYATT** is following in his dad's footsteps, is now at U. of Maine taking the fourth year of a 5-year pulp and paper course. Wyatt just got out of the Marines, where he served as 1st Lt. The 22-year-old ex-Leatherneck's father is v.p. in charge of sales at Camp Mfg. . . . **RUFUS BARKLEY, JR.**, graduate of U. of Virginia, has that happy look of the newlywed. He married his college sweetheart (she went to Sweetbrier) in June and has just taken over as head of sales and advertising for Cameron & Barkley, equipment distributors in Charleston, S. C. This is his first year with dad's firm—he finished two-year stint with the Army, just celebrated first anniversary in business. . . . **CAM NIEDERHOF**, head of WestVaCo's Woodlands Div., had better look to his hunting laurels. His 11-year-old son bagged a deer the first day out last year, nailed a duck on the opening day of duck season, and then raised havoc with the doves when the season opened in September. Cam's boy is also top man in class at schoo, and won an award for baseball. . . . **JOKES OF THE MONTH:** WestVaCo's boys are full of chuckles. Cam tells about the lady who called and asked if it were true that the company was giving away lollipop tree seedlings! . . . and Duke Haynes swears one of his men has an old car that is so beat up, when he started across a toll bridge without paying and the attendant yelled, "Hey, 50 cents for the car," his man yelled back: "Sold!" . . . **JOHN A. LUKE**, former assistant mill manager, administration, for West Virginia, has taken over as manager of the firm's Luke, Md., mill. He's carrying on proud tradition of the family: dad is **DAVID L. LUKE, JR.**, West Virginia's president. . . . An unusual story: When **JAMES COOPER**, a Champion Carolina Div. pipefitter, was serving in the South Pacific in World War II, he received a dollar-sized medallion with the traditional "knight on the horse" trademark engraved on it . . . one of many sent to all Cham-

Continued on page 10

Foreign Students Visit in South

In Louisiana News

ALFRED SUTER (left), longtime General Supt. at Gaylord Container Corp., now a new giant division of Crown Zellerbach, is Res. Mgr. at the Bogalusa, La., mill. He is Swiss-born and has had many years of papermaking.

WM. A. ROBINSON (right), newly appointed to key production post with the bagasse-papermaking Valentine Pulp & Paper Co., returning him to his native South. He has been doing research in Hawaii on possible bagasse use there for paper or pulp. Before that he was with Fibreboard in California and had been Tech. Dir. at Atenquique, Mexico.

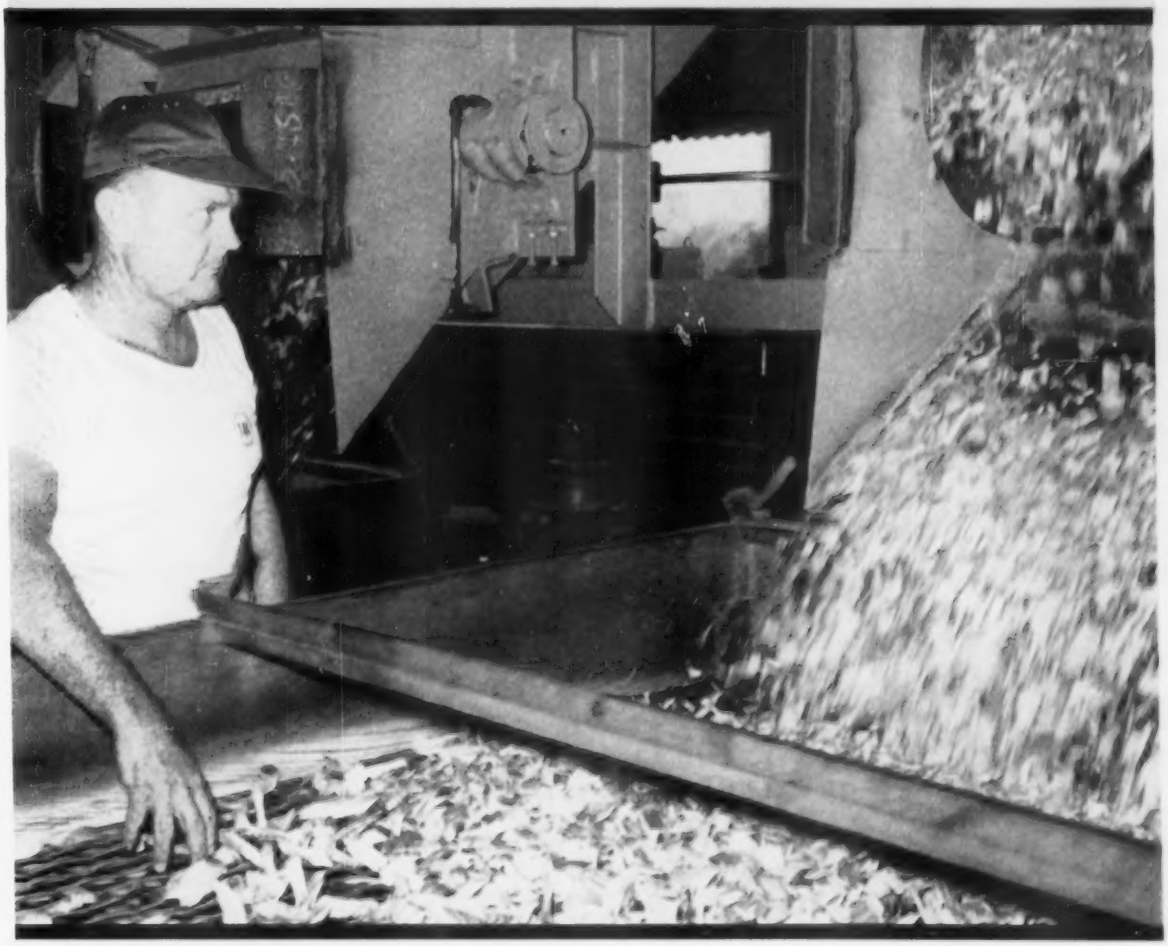
Why we DON'T let the chips fall where they may!

Casting an "eagle eye" on the wood chips used in making Buckeye High Alpha Cellulose is a vital—and full-time—job for this member of our production team. Because he makes certain that chips of the right size flow into our 60-ton digesters, you're assured a perfectly uniform cellulose product.

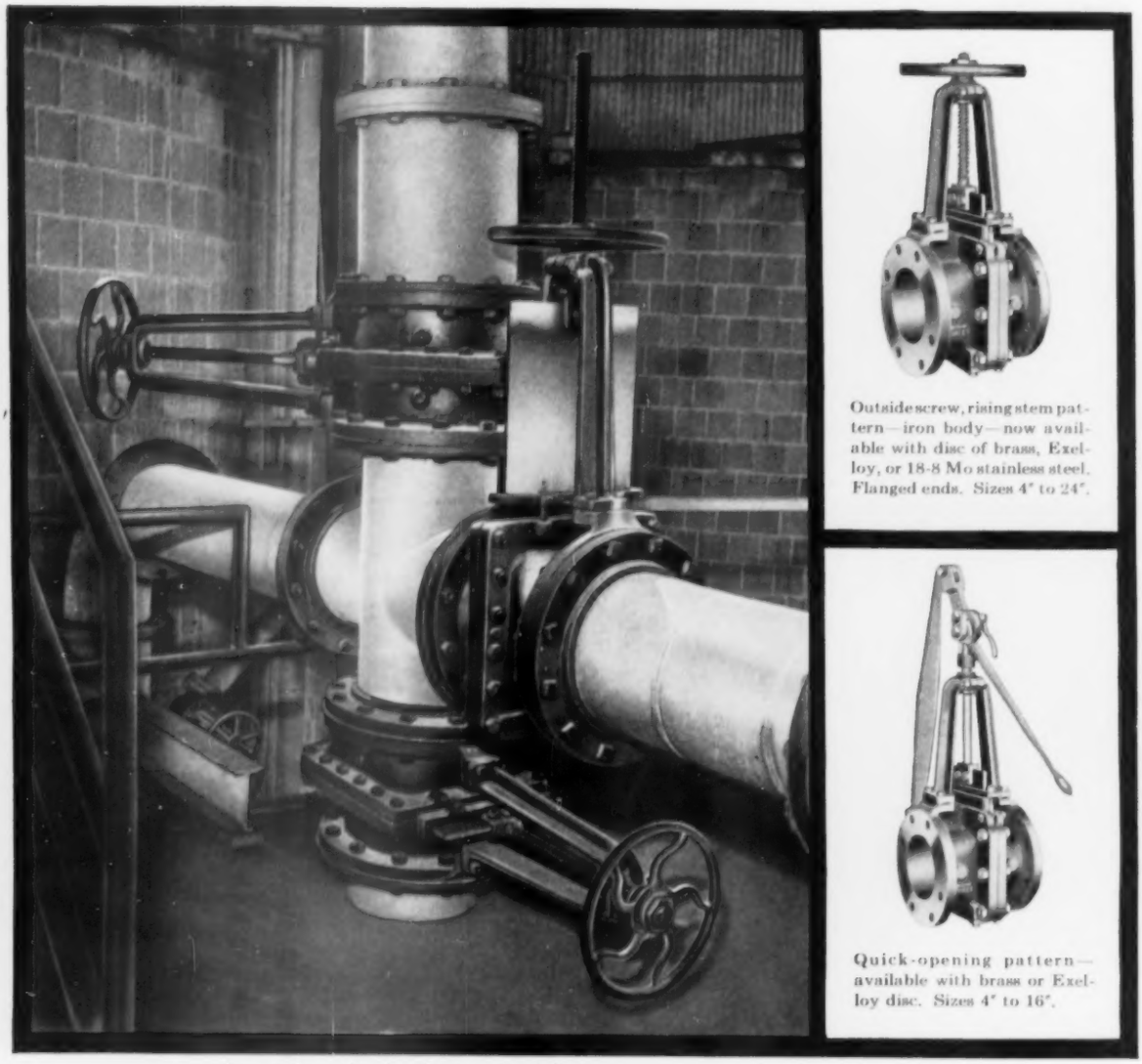
Here you see one of 27 controls followed by Industry's first producer of cellulose to bring you a product exactly suited to your particular need. And Buckeye is your *dependable* source of supply—because in all 48 states, only Buckeye makes *both* cotton linters and high alpha wood cellulose.

At Buckeye's two great plants . . . in Memphis, Tenn., and Foley, Florida . . . facilities for production, research, and customer service are the best obtainable. And remember: as a subsidiary of the Procter & Gamble Company, Buckeye has full access to "P & G's" Miami Valley Laboratories.

So, whatever your cellulose problem, why not call on Buckeye experience to find the answer? Tell us about it . . . *today!* Please address inquiries to Buckeye Cellulose, P. O. Box 6746, Memphis 8, Tennessee.



BUCKEYE ...first in cellulose



Outside screw, rising stem pattern—iron body—now available with disc of brass, Exelloy, or 18-8 Mo stainless steel. Flanged ends. Sizes 4" to 24".

Quick-opening pattern—available with brass or Exelloy disc. Sizes 4" to 16".

Crane pulp stock valves in storage tank lines.

These famous pulp stock valves now also made with 18-8 Mo stainless steel disc!

Do your valves on treated pulp stock lines need extra protection against corrosive liquids and vapors?

Crane, as usual, has the answer to your problem. In addition to our famous iron body pulp stock valves with brass or Exelloy disc, we now regularly supply these valves with a Type 316, 18-8 Mo disc.

The basic design of Crane pulp stock valves remains unchanged . . . with the same nonclogging, self-cleaning features, positive shearing-action disc, and tight seating . . . but with the extra protection of an 18-8 Mo stainless steel disc. These valves are obtainable from stock, with or without a lining of ⅛" hard natural rubber, and are available in sizes from 4" to 24".

For complete details, see your Crane representative, or write Crane Co., General Offices: 836 S. Michigan Ave., Chicago 5, Ill. Branches and Wholesalers Serving All Industrial Areas.

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VALVES • FITTINGS • PIPE
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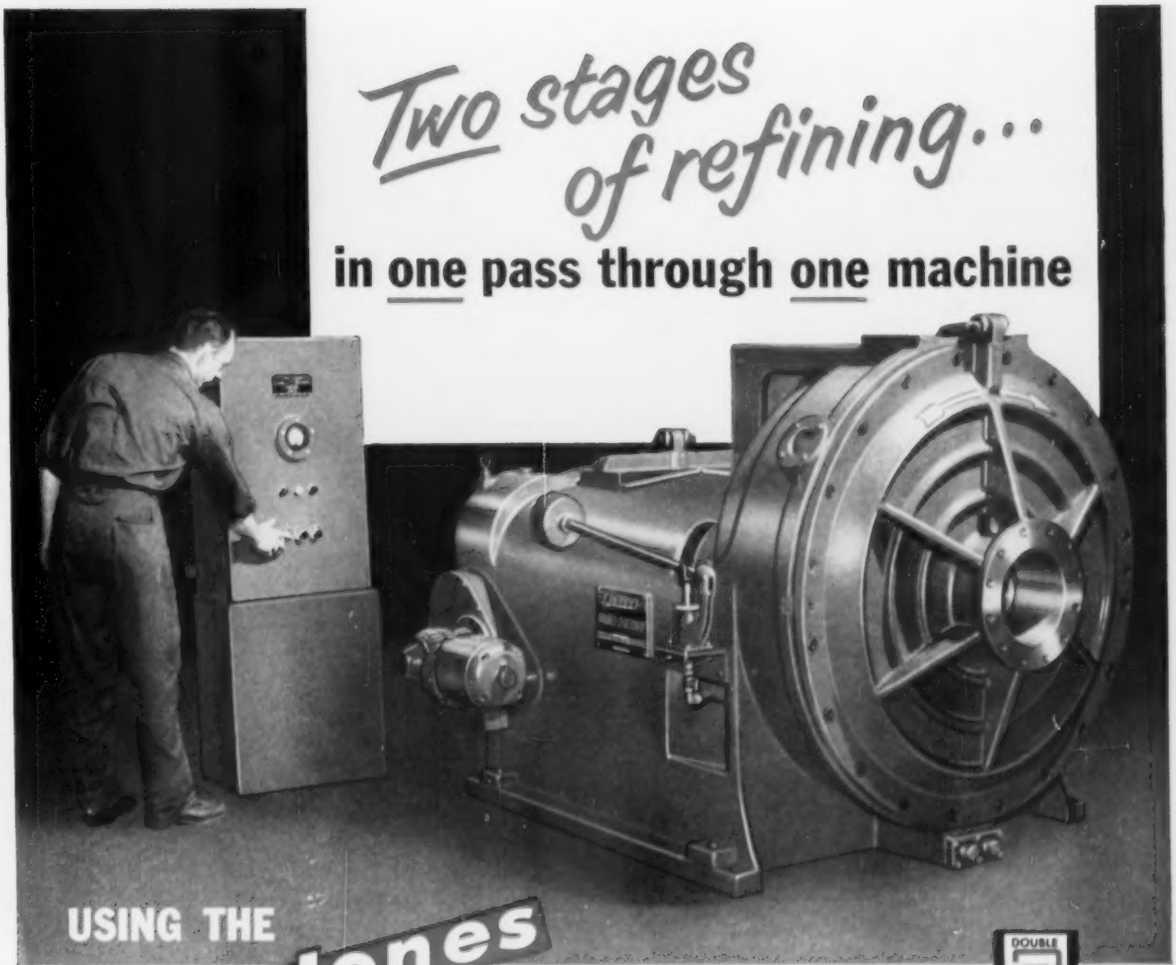
CRANE'S FIRST CENTURY...1855-1955

Two stages of refining...

in one pass through one machine



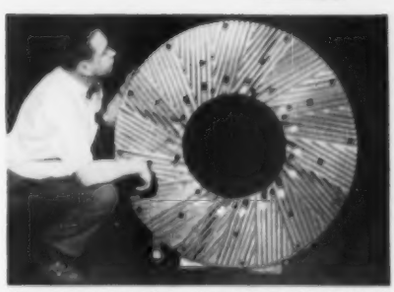
USING THE Jones DOUBLE-D with DOUBLE EQUA-FLO EFFECT

Does the work of two conventional refiners

That's the record in one big southern mill where the Jones Double-D Refiner has been in regular operation for more than 18 months.

For the Double-D, although new, is not untried. Far from it! Proven by exhaustive tests in a number of mills, this first truly pressurized disc refiner has demonstrated its ability consistently to do the work of two or more conventional refiners.

To learn more about its remarkable performance, clean design, and ease of maintenance and operation, ask your Jones representative or write us direct for Bulletin EDJ-1083.



One of four huge refining discs in the Double-D. Stock, passing under constant pressure between two stationary discs and two rotating discs, gets perfectly controlled 2-pass refining . . . double refining effect.

E. D. Jones & Sons Company
Pittsfield, Massachusetts
BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

Jones

In Canada:
The Alexander Fleck, Ltd., Ottawa

SOUTHERN NOTES, continued

pion men in the armed forces. Cooper was heartbroken when he lost it on one of the far-off islands. Now, 10 years later, he got the medallion back. It was found by a California serviceman in the islands who sent it to his mother. She located the owner when she recognized the trademark in a Life ad. . . . **ROBERT A. (Bob) HART** is new community relations assistant manager at Champion's Texas Div., takes over from **JAMES RUSHING**, who retired to private business. . . . University of Houston football team is boasting two ex-Champion millhands in **SAMMY BLOUNT** and **JIM DICKEY**. They worked themselves into top physical shape as laborers during the summer. . . . **H. E. BOVAY, JR.**, is head of a consulting engineering firm which moved into its own building last week at

New Posts at Scott, Huyck

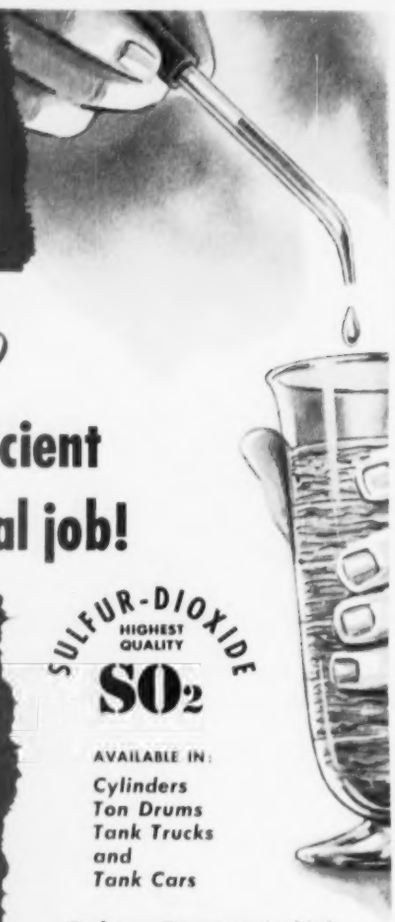
J. DANIEL BOWDEN, (left), has been named to newly-created post of Southern Retail Regional Mgr. of Scott Paper Co., based in Atlanta. Bowden, formerly Products Development Mgr., is a graduate of U. of Ga. S. JAY KNOWLES, (right), formerly Supt. of Volney Felt Mills, Irving, Tex., has been assigned as Field Service Engr. in the Southwest by F. C. Huyck and Sons, Rensselaer, N. Y.

5009 Caroline St., Houston. They will continue to maintain offices in the Esperson Building for convenience of clients downtown. . . . **JOHN WITHERSPOON**, of South Carolina, has been named forester for American Forest Products Industries in Washington, D.C. . . . **M. A. HAMRICK** of Koppers Co., Inc., Wood Preserving Division, has been named assistant district sales manager of the Jacksonville, Fla., area. He's a Cedartown, Ga., native. . . . **L. D. LONG**, graduate of Jacksonville State College in Alabama with an m.s. in Chemistry at George Peabody College in Nashville, Tenn., will represent the laboratory supply firm of A. S. LaPine & Co., 6001 So. Knox Ave., Chicago, in Louisiana and along the Gulf Coast. . . . **JOHN BATES**, onetime technical supt. at Niagara Falls No. 2 Mill of Kimberly-Clark, has been transferred to tech. supt. of the Memphis mill. He graduated from U. of Wisconsin as a chemical engineer. . . . **RICHARD F. FORBES**, head pipefitter at the Memphis plant, took his wife and sister on a 4,000-mile automobile trek through Mexico on his vacation. . . . **JOHN G. WALTERS**, formerly consultant on waste disposal for Infilco, Inc., has been appointed sales representative for Georgia, North and South Carolina. Walters holds a b.s. degree from Washington College, a masters from Columbia and took a premed course at Temple Univ. He also studied a year at Johns Hopkins in sanitary engineering.

JAMES A. WHELAN is the new general supt. at Rome Kraft moving up from pulp mill supt. **MURPHY J. BROWN** becomes pulp mill supt., **ELZIE JERNIGAN** moves to tour foreman, pulp mill, **EMORY W. CLARK**, former chief meter man, and **WILLIAM E. ROSS**, former assistant chief chemist, become assistants to the general supt. **KENNETH W. RIDDLE**, formerly engineer, moves up to chief meter man. **BURT JONES**,

Continued on page 14

Tennessee's
LIQUID SULFUR DIOXIDE



Can Probably Do
A More Efficient
...Economical job!

Particularly recommended for its properties as a reducing, neutralizing and bleaching agent, preservative, antichlor and pH control.

Tennessee's Liquid Sulfur Dioxide is producing a more efficient and economical operation in certain processes of the pulp and paper industry. It is highly effective in pulp treatment to prevent color reversion, and it makes certain undesirable materials easier to wash out of the pulp.

SULFUR-DIOXIDE
HIGHEST QUALITY
SO_2

AVAILABLE IN:
Cylinders
Ton Drums
Tank Trucks
and
Tank Cars

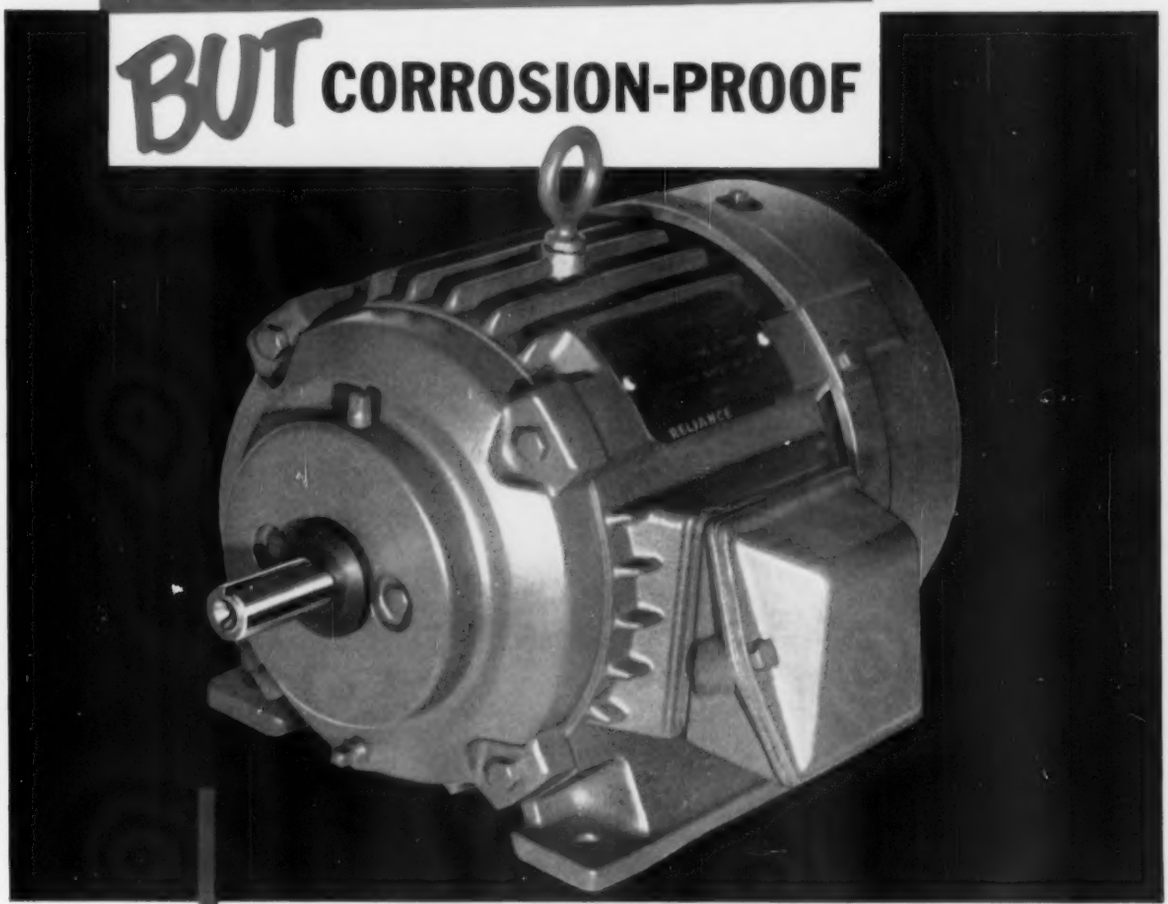
Perhaps Tennessee's highest purity Liquid Sulfur Dioxide would better fit into your processing . . . We would like to discuss this with you.

TENNESSEE TC CORPORATION

617-629 Grant Building, Atlanta, Georgia

Not Just CORROSION-RESISTANT

BUT CORROSION-PROOF



Corrosion resistance is not enough to stop acids or alkalies from chewing up a motor in a hurry. That is why the wise engineer selects Reliance Corrosion-Proof Motors for corrosive service.

These motors are built to withstand the onslaught of destructive chemicals for years. Housings are made of virtually indestructible cast iron. Exterior contours are designed to slough off liquids—no nooks and crannies to retain corrosive elements. Enclosures are sealed to prevent any leakage . . . Metermatic lubrication systems provide complete protection against burned out bearings and contaminated lubricants.

Anyway you look at them, Reliance Corrosion-Proof Motors can take it—and you're not limited in the choice of motors either. A complete line of a-c. motors, 1 thru 300 hp., is available in all mountings, frequencies and voltages.

Why not call your Reliance representative today and get all the details.

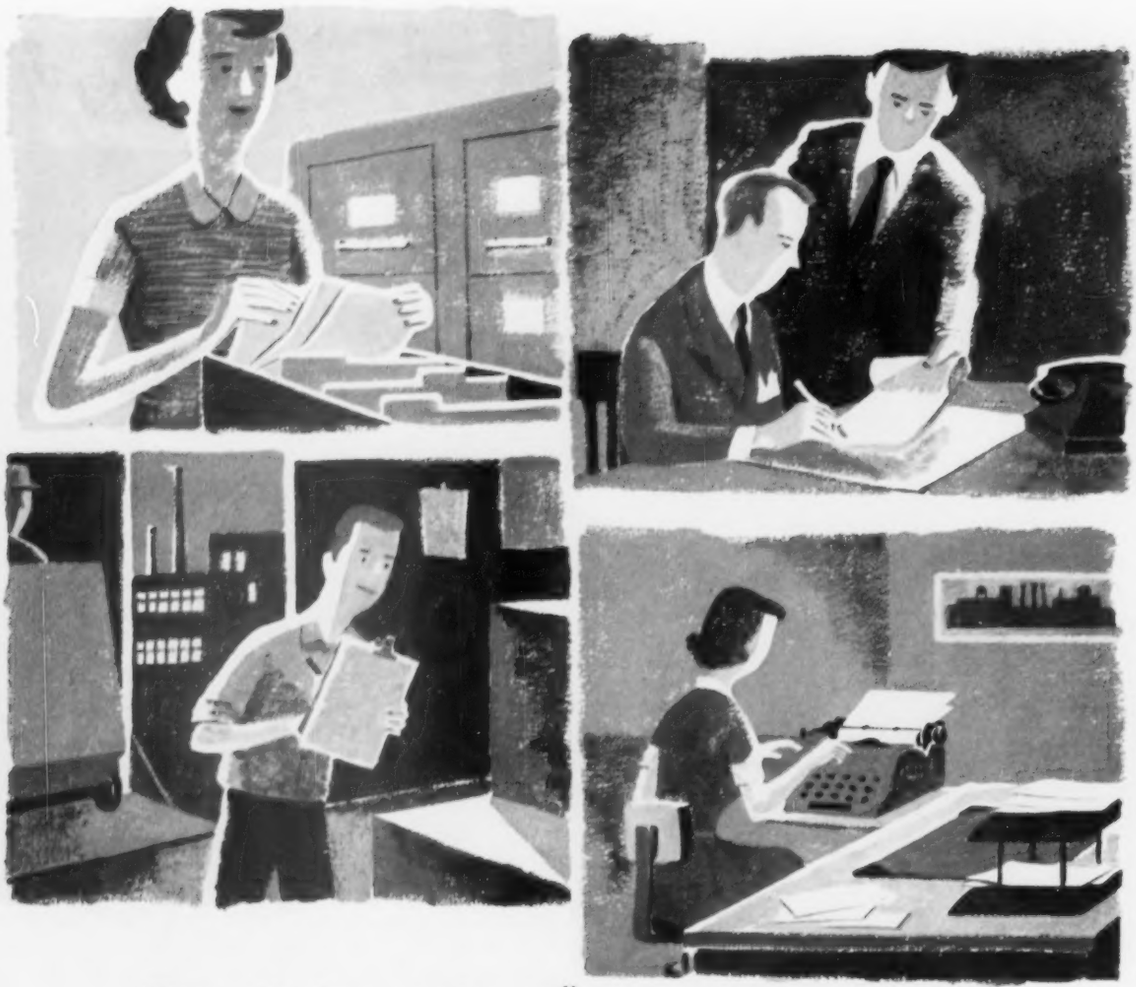
B-1505

RELIANCE *Totally-Protected* MOTORS

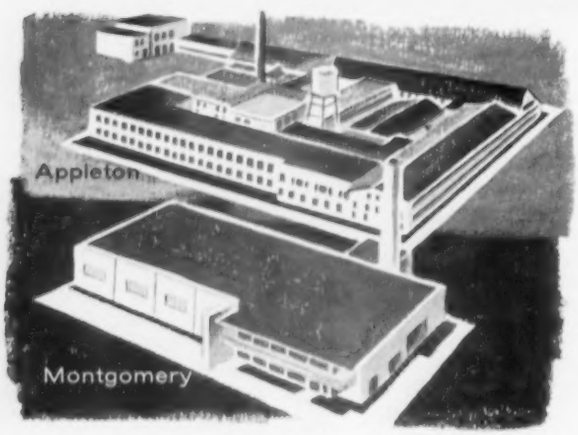
RELIANCE ELECTRIC AND ENGINEERING CO.

Cleveland 10, Ohio • Offices in Principal Cities

Canadian Division: Welland, Ontario



Paper helps make it "good business today"



General Offices, Appleton, Wisconsin

Plants at Appleton, and Montgomery, Alabama.

Business is booming, and business papers preserve essential records. Deeds and contracts—orders and acknowledgements—checks and invoices—forms for every situation... creating order where all might be chaos—contributing to clarity, communication, and efficiency—minimizing errors to protect buyer and seller, property and production, and keep business thriving.

And in at the start of business papers—in every field where paper goes to work... Fourdrinier wires. Appleton Wires. Good wires—by a 59-year test of industry-wide acceptance and use.

Appleton Wire Works, Inc.

"SAVINGS in operation and maintenance first year were *more* than cost of four Yarway Digester Blow Valves"

THAT was the experience of a large Florida mill after they installed YARWAY Seatless Motor Operated Blow Valves on their digesters.

Clean, fast blows eliminated production delays. Expensive liquor loss from leaking valves ended. Remote control of motor operation reduced operating costs.

Continued satisfaction has resulted in installation of additional YARWAY Digester Valves for expanded plant facilities.

Such records are not unusual and new features like the YARWAY 17/4 PH stainless steel plunger and automatic lubricator, combined with improved operating control, make YARWAY Seatless Digester Blow Valves an even better buy today.

You may choose between hydraulic-cylinder or electric motor operated valves, all remotely controlled.

For the full story on Yarway Seatless Digester Blow Valves write for this free Bulletin B-440.

YARNALL-WARING COMPANY
103 Mermaid Avenue, Philadelphia 18, Pa.
BRANCH OFFICES IN PRINCIPAL CITIES

YARWAY digester blow valves

STRICTLY PERSONAL

SOUTHERN NOTES, continued

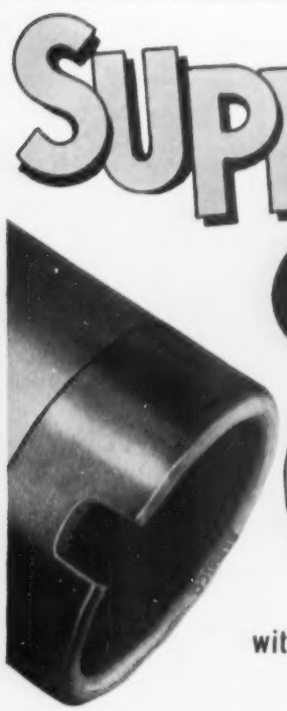
formerly digester cook, becomes assistant chief chemist. **ALBERT CONNER,** formerly with Kaighin & Hughes at Oak Ridge, Tenn., has joined Rome Kraft as engineer.

HENRY RAINES, of Bradenton, Fla., representative for Shuler & Benninghofen, makers of Hamilton felts, in states of Florida, Georgia, No. and So. Carolina, Tennessee and Alabama, had a rendezvous with his "Dad," **ROBERT RAINES,** at the Supts. National. The latter, now superintendent at Bancroft Paper Mills, Bancroft, Mass., formerly was super at Crystal Tissue, Middletown, O.

BAILEY METER Co. has moved its Atlanta office, under managership of **M. J. McWHORTER,** to 1145 Peachtree St., N.E., Room 3090, Atlanta 5. Staff includes instrument engineers **J. W. CUNNINGHAM, W. R. CUNNINGHAM, V. D. KEMP, J. R. LYNCH** and **C. W. BERRY.** The Dallas office, under **F. D. KRUSEMARK,** moved to 6615 Snider Plaza, Room 211, Dallas 5. He is assisted by **P. B. NEWELL.**

ALBERT HENTSCHEL, now retired, but formerly pulp mill supt., Flintkote, New Orleans, lives at 1415 Alvar St., New Orleans.

P. L. McCALL, supervisor of No. 8 machine project for Sonoco Products Co. recently returned from a trip abroad where he visited London, Germany, France, Italy as well as the Holy Land. His inter-eastern trip covered Palestine and parts of Iran.



SUPER PAPER MILL AND SPECIALTY CORES

with or without BERMICO Metal Ends

ECONOMICAL CARRIERS FOR—

- Newsprint
- Wax Paper
- Parchments
- Cash Register and Adding Machine Paper
- Blue Print Paper
- Cellophane
- Tapes, etc.

Sonoco DURO Paper Mill Cores, with Bermico Metal Ends, combine super-strength, long service and low cost. A special scuff-resistant paper is used for the outside wrap. Available with metal ends in sizes 3" to 6" I.D., in any length. Also available is the economical RHINO non-returnable core in standard and special sizes.

SPECIALTY CORES from ¼" O.D. and up, in lengths from ½" to 24' or longer with smooth or rough surfaces. Furnished in solid colored stock, plain or with special inside or outside wrap.

DURO RETURNABLE and RHINO NON-RETURNABLE

sonoco PAPER CARRIERS

SONOCO PRODUCTS COMPANY

MAIN OFFICE—HARTSVILLE, S. C.

MYSTIC, CONN. AKRON, IND. PHILLIPSBURG, N.J. LOWELL, MASS. GRANBY, QUEBEC PHILADELPHIA, PA. LOS ANGELES, CAL. LONGVIEW, TEXAS BRANTFORD, ONT.

MEXICO: Sonoco de México, S. A., Apartado 10239, México, D. F.

DEPENDABLE SOURCE OF SUPPLY

New Posts in Wisconsin Mills

JOHN E. BECKER (left), elected new Vice Pres. and Asst. to Pres. of Rhinelander Paper Co. A graduate of Phillips Exeter and Univ. of Wisconsin (1949), he has been with Rhinelander since then, lately as Asst. Sales Mgr., except for a period in the Office of Price Stabilization in Washington.

DR. WILLIAM R. HASELTON (right) is new Mill Mgr., in charge of pulp and paper mills, converting and by-products at Rhinelander. A Rensselaer Polytech graduate, with ph.d. from the Institute, he joined Rhinelander in 1953 as Tech. Dir. and since 1954 has been Mgr. of Mfg.

MIDWEST MEDLEY

Bells for Marc Reynolds; Harry Lamb is Retiring

MARCUS T. REYNOLDS, representative in West Wisconsin, Minnesota and Illinois for Albany Felt Co. (offices at 40 East Oak St., Chicago), was to be married in October to Anne Nuveen, of Winnetka, N.Y., and granddaughter of Judge Wm. S. Bennet of Mt. Vernon, N.Y. They became engaged Aug. 27. Mr. Reynolds, who is a great-nephew of Judge Learned Hand of New York, graduated from William College and was with Gen. Patton's 3rd Army in WWII. His fiance attended school in Switzerland and graduated from Connecticut College. . . . **HARRY L. LAMB,** director of production at River Raisin Paper Co., Monroe, Mich., has been making plans for his retirement. . . . **DR. JOHANNES VAN DEN AKKER** of the Institute of Paper Chemistry staff and daughter Val made a tour of the west, especially to his old haunts in California. . . . **WILLIAM D. MC-**

Continued on page 18

JUST HOW MUCH REEL *DO YOU NEED?*

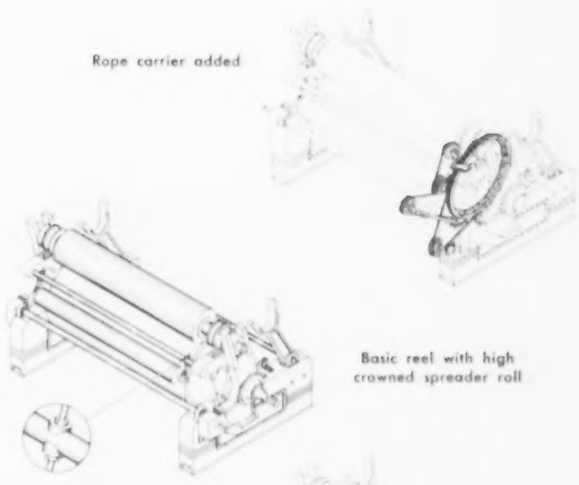
With Black-Clawson Rollflyte reels you can install as much reel as you need and stop at that. The rugged new Rollflytes are available as simple, basic reels. They are equipped with air-loaded secondary arms—air loading of primary arms can be provided.

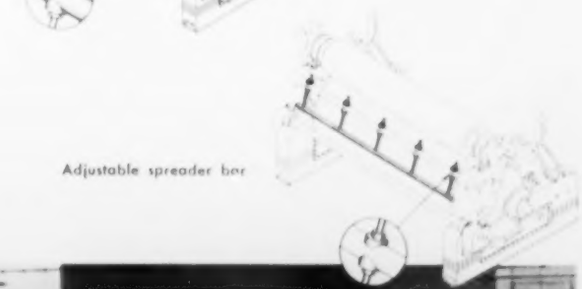
If desired, the Rollflyte can be equipped with a rope carrier, a speed-up belt for starting new spools, and a choice of either a spreader bar or spreader roll.

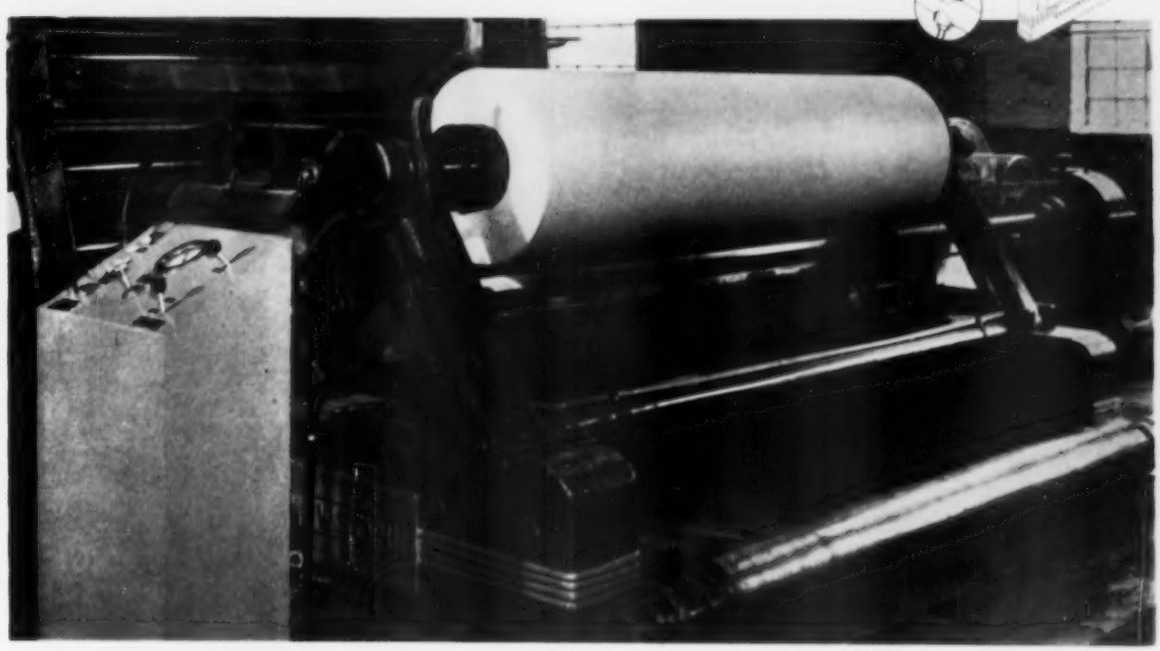
Can also be equipped with special rails upon which the secondary arms discharge full rolls of paper—for delivery directly to the unwind stands. Heavy overhead cranes for this purpose no longer required.

Will handle rolls up to 62" diameter. Minimum drum width—trim plus 6". Widths up to 175". Speeds as required.

Contact Hamilton division. Ask for bulletin HB-45.





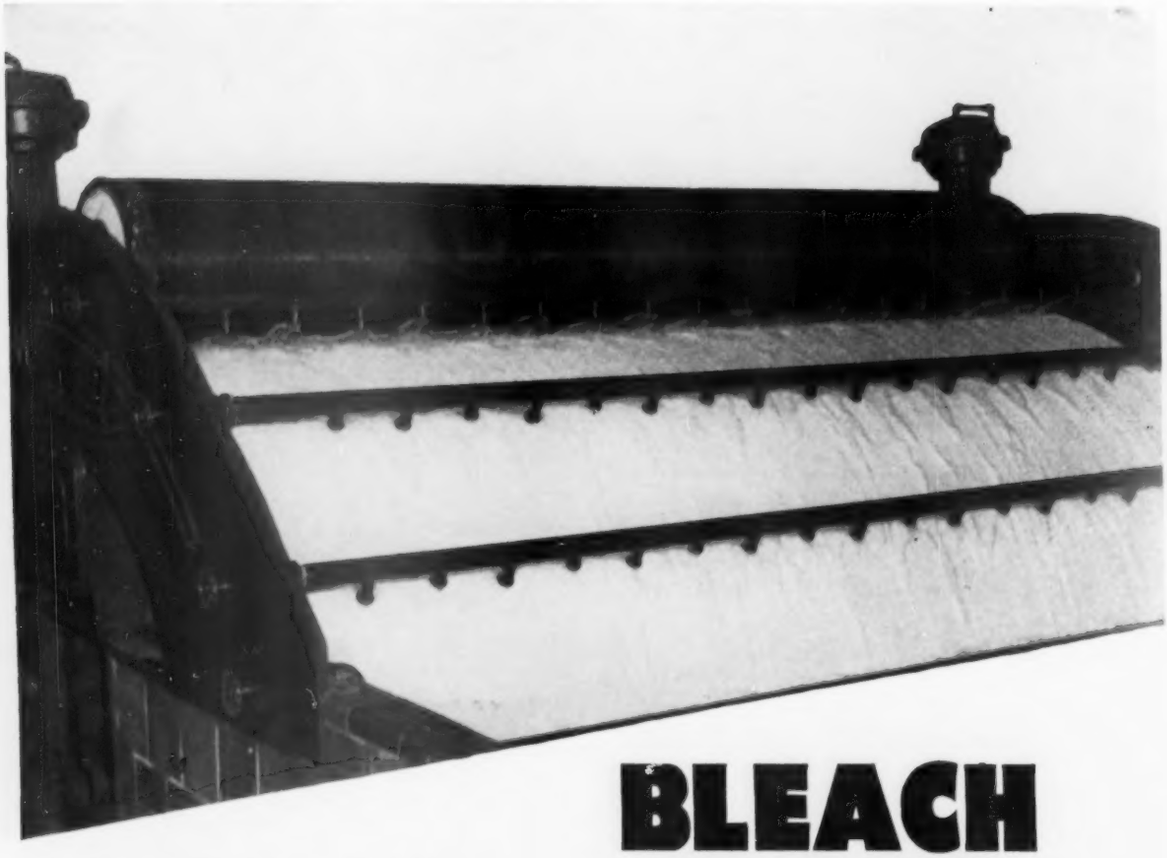


The BLACK-CLAWSON Company

BLACK-CLAWSON DIVISION • HAMILTON, OHIO

PANDIA INC. DIVISION • Pulp Mill Equipment
SHARTLE BROS. MACHINE DIVISION • Stock Preparation Equipment
BAGLEY-SEWALL DIVISION • Fourdrinier Machines
DILTS DIVISION • Converting Machinery

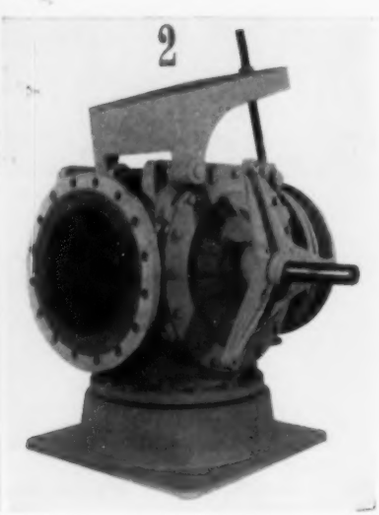
BLACK-CLAWSON INTERNATIONAL LTD. DIV. • British-European Manufactory
BLACK-CLAWSON (CANADA) LTD. • Serving Canada



IMPCO

BLEACH PLANT EQUIPMENT

● Sherbrooke Machineries Limited, Sherbrooke, Quebec Manufactures Similar Equipment in Canada



IMPCO manufactures virtually all types of mechanical bleach plant equipment for new and old plant application. These component parts are readily adaptable for re-vamping existing plants, no matter what the sequence is or is planned to be. We welcome the opportunity to work with you and if necessary tailor the equipment to best satisfy your needs.

We have long recognized the fact that there is no such thing as a standard continuous bleach plant nor are we wedded to any particular sequence flow with corresponding arrangement of equipment. We will continue to develop equipment best suited to do your job.

1 **Bleach Washers**—Impco Vacuum Washers give highest washing efficiencies at low fresh water consumption. Every Impco Washer is "Tailored-for-the-job." Made in 3' - 5' - 8' - 9'6" and 11'6" diameter sizes up to through 20' lengths, in any material of construction.

2 **Line Mixers**—This low-density wabble plate chemical and chlorine Saver-Mixer provides a rapid mixing result which improves retention uniformity with a big savings in chemicals.

3 **Single Shaft Mixers**—This single shaft mixer built of solid hastelloy was developed for mixing liquid ClO_2 with hi-density pulp. Its single hastelloy rotor contained in a specially designed case delivers uniformly mixed pulp and chemical at the critical moment of reaction.

4 **Scraper-Screw Dischargers**—The unit pictured here is used in continuous down-flow type high density bleachers. Developed over twenty-five years ago, this mechanism offers the most positive and fool proof method of high density stock removal.

5 **Thick Stock Pump**—This positive displacement double rotor pump in solid type #316 stainless construction easily handles stock consistencies from 10% A.D. to 17% A. D. Built in two sizes, the series 300 will handle 350 T.P.D. and the series 500 will do 600 T. P. D. plus. This unit is used in virtually every ClO_2 bleach plant today and has a definite application in high density storage work.

6 **Pulp Circulators**—Built in three sizes in a combination of any acceptable materials for bleach plant work, this specially designed propellor circulator eliminates radial projection and puts the horizontal propulsion factors to work—Result?—A down flow high density bleacher that delivers uniformly, making short circuiting ancient history.

7 **Double Shaft Mixers**—These work horses of the bleach plant, rugged in design and thorough in their job of surrounding the individual fibre with chemical, continuously and intimately mix the chemical, steam and pulp through special internal features. Repeated field tests indicate thorough mixing in pieces of pulp as small as 25 milligrams in particle size.

IMPROVED
MACHINERY INC.
NASHUA, NEW HAMPSHIRE

IMPCO

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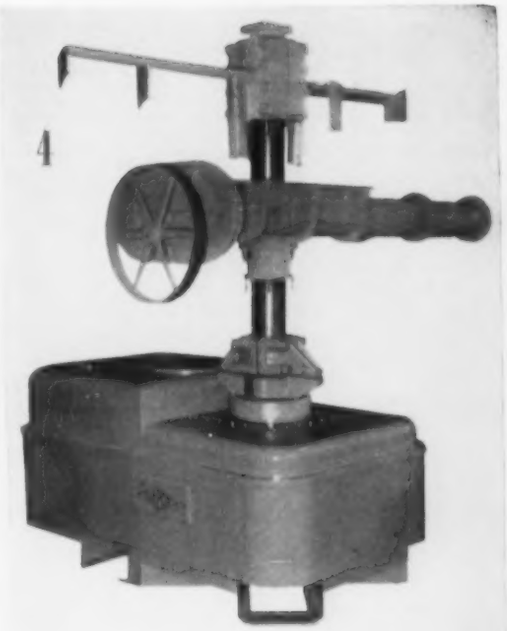

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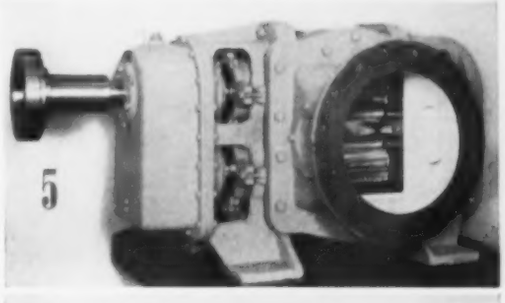

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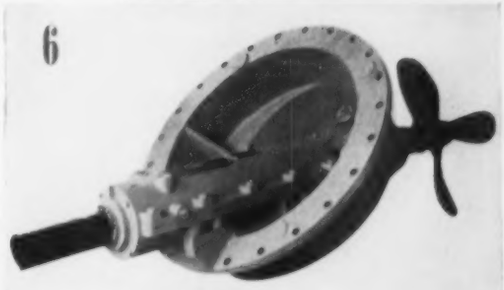

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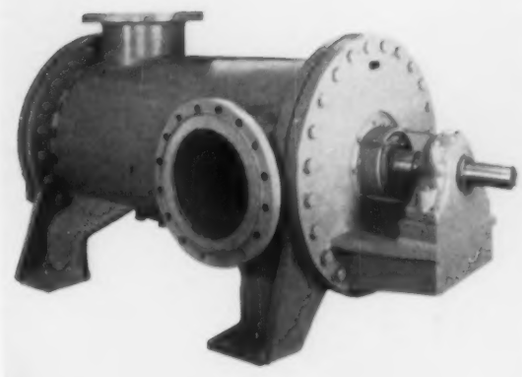

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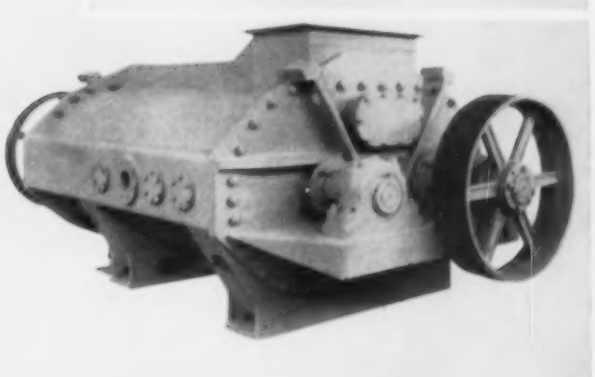


STRICTLY PERSONAL

MIDWEST MEDLEY, continued

GUIRE, budget coordinator for Kimberly-Clark, was associate chairman of a recent American Management Assn. workshop. . . . **WILLIAM E. FRENCH, Jr.**, of Mt. Prospect, Ill., has become associated with Williams-Gray Co., 221 No. LaSalle St., Chicago, representatives of Lindsay wires and Knox felts, as announced by its senior member, **PAUL FOSTER**. . . . **ROBERT EASTERLY**, representing Ebasco Services Inc., in the Midwest states, and Mrs. E. have acquired a home in Hinsdale, Ill. Offices are at 209 So. LaSalle St., Chicago. . . . **PHILIP S. CADE** is v.p. for manufacturing of Harding-Jones Paper Co., Middletown, O. . . . **JOSEPH CUTRO**, formerly with Black-Clawson in Hamilton, O., is now plant engineer of Otsego Falls (Mich.) Paper Mills. . . . **RONALD**

TRONA®
SALT CAKE
FOR
QUALITY KRAFT
PRODUCTION
TRONA, long the largest basic source of natural sodium sulphate (Na_2SO_4) continues to produce highest purity uniform grade Salt Cake, to keep pace with the expanding kraft paper industry. You can be sure, when you specify TRONA, of an *adequate* and *dependable* source of supply for this essential ingredient in quality kraft production.
American Potash & Chemical Corporation
TRONA
INDUSTRIAL AND AGRICULTURAL CHEMICALS
Offices • 3030 West Sixth Street, Los Angeles 54, California
99 Park Ave., New York 16, New York
Plants • Trona and Los Angeles, California

Middle West Men Advance

C. G. RUSSELL JOHNSON (left), is new Chief Engineer for entire Kimberly-Clark Corp., succeeding James T. Whelan, who retired after 31 years with company. "Rusty" Johnson has been in Corporation Engineering all his 26 years of K-C service, except for three war years when he was Asst. Gen. Mgr. of K-C's Ordnance Division. A graduate of Northwestern University, he has been Asst. Chief Engr. since 1947. He had been Mill Engr. and Div. Chief of the Paper Section prior to that.

P. M. CHIUMINATTO (right) Secy.-Treas. of Charmin Paper Mills, Inc., Green Bay, Wis., has been elected to the Charmin Board of Directors, it is announced by Pres. J. M. Conway. He succeeds W. Y. C. Hunt, Summit, N. J., who resigned due to age. Mr. Chiuminatto began his career with Charmin as an accountant in 1924. He was subsequently promoted to Office Mgr. and Insurance Mgr., Asst. Secy.-Treas. and then Secy.-Treas. in 1939.

HAMILTON, formerly Marathon process engineer, is a 2nd lieutenant, U.S.A. at Grand Island, N.Y. . . . **STEPHEN KUKOLICH** is new technical director for Lee Paper at Vicksburg, Mich. . . . **FRANK TOMSYCK**, recently with a Milwaukee firm as civil engineer and 1950 graduate of Marquette University, has joined the engineering dept., Consolidated Water Power & Paper, as a civil engineer, according to **M. V. MOLSBERRY**, chief engineer. . . . **DR. AL NADELMAN**, head of the paper technology, dept., Western Michigan College, reports a 13% increased enrollment this fall, with 104 students. A record senior class totals 23, all planning for paper industry positions next June. Newest faculty member is **EDWARD E. STEPHENSON**, a graduate, who continues to hold his job at Sutherland Paper Co. . . . **ROBERT A. HUSTON**, formerly of KVP, and now vice pres. for public and industrial relations, Fuller Mfg. Co., is chairman of advisors to a Western Michigan industrial supervision curriculum. **ROBERT A. MILLER**, KVP comptroller, is on his committee. . . . **ROY J. SUND**, Marathon vice president, is chairman of the Neenah-Menasha Salvation Army service unit. . . . **FRANK MOHR, Jr.**, is new industrial relations asst. at Ohio Boxboard Co. . . . **THERON S. (Ted) BUSHNELL** is Midwest representative out of Chicago for Tube Turns Plastics Inc., Louisville, Ky., according to Exec. Vice

Continued on page 22

Multiple bleaching of PUGET PULP

Converting mills use

PUGET PULP

in the manufacture of paper for direct mail advertising

PUGET PULP is bleached sulphite—clean and clear enough for the finest product, strong enough for the hardest use.

PUGET PULP is produced in steadily expanding amount in one of the most scientifically up-to-date mills in America.

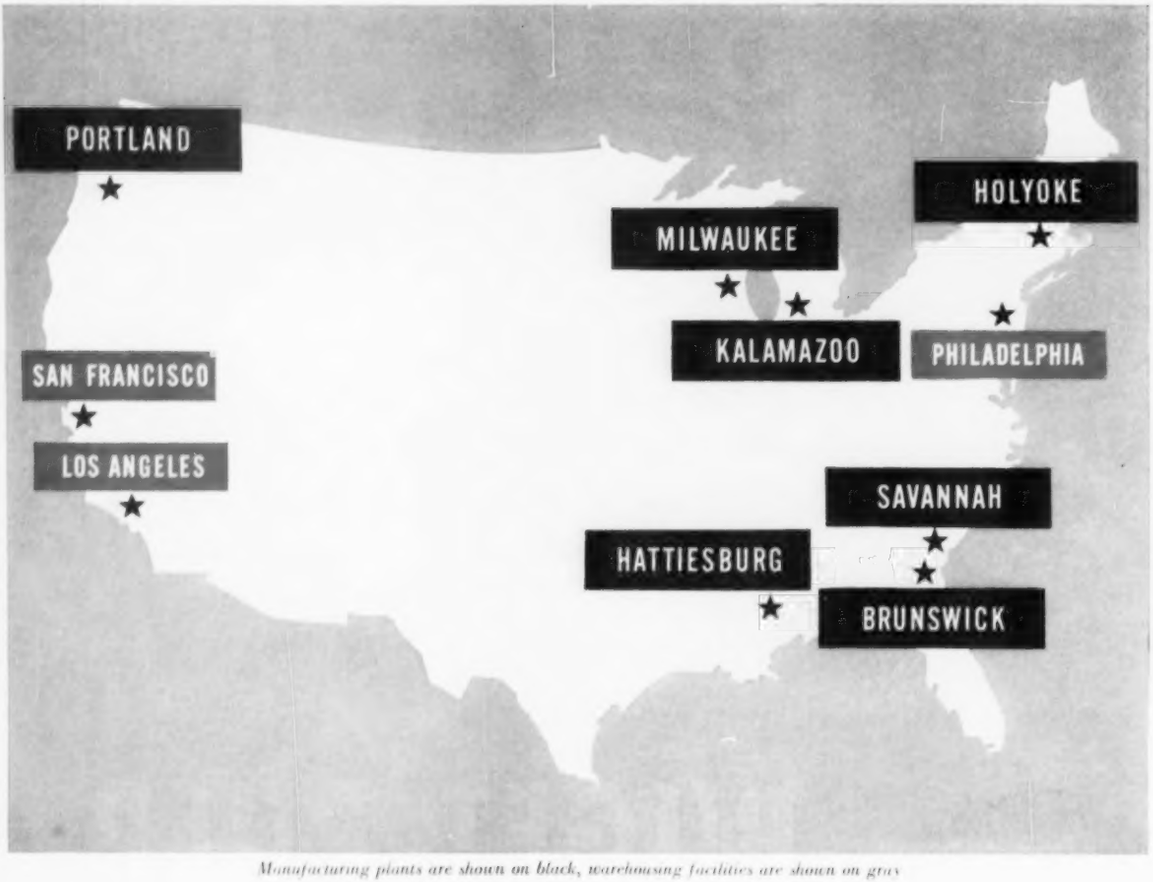
PUGET PULP is made expressly for the market. Converting mill users are assured of a steady supply from a single non-competitive source.

Gear your operations to **PUGET PULP**.

With output now exceeding 450 tons daily, more PUGET PULP is available for the market

PUGET SOUND PULP AND TIMBER COMPANY

BELLINGHAM • WASHINGTON



Manufacturing plants are shown on black, warehousing facilities are shown on gray

HERCULES SIZE ON YOUR DOORSTEP

Hercules' manufacturing and warehousing facilities for papermaking chemicals are strategically located in all papermaking areas. This insures a dependable supply and prompt delivery service, two of many important reasons why paper mills use Pexol® as well as other Hercules papermaking chemicals. No matter where your plant is located, the nationwide distribution of Hercules manufacturing facilities places a stockpile of papermaking chemicals practically in your own back yard.

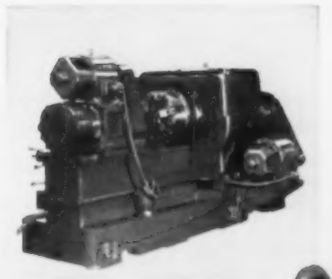
Behind these quality products, available from many shipping points, there is Hercules' forty-plus years of research and technical service experience in solving many papermaking problems.

More and more mills are recognizing the advantages of a dependable source of supply for quality products backed by research and application know-how.

Paper Makers Chemical Department
HERCULES POWDER COMPANY
INCORPORATED
965 King Street, Wilmington 99, Del.

1. Two adjustable speed D.C. Motors used on a special lathe.

2. A wide speed range adjustable speed D.C. Motor used on a tire building machine.



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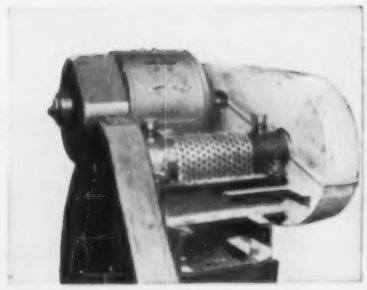
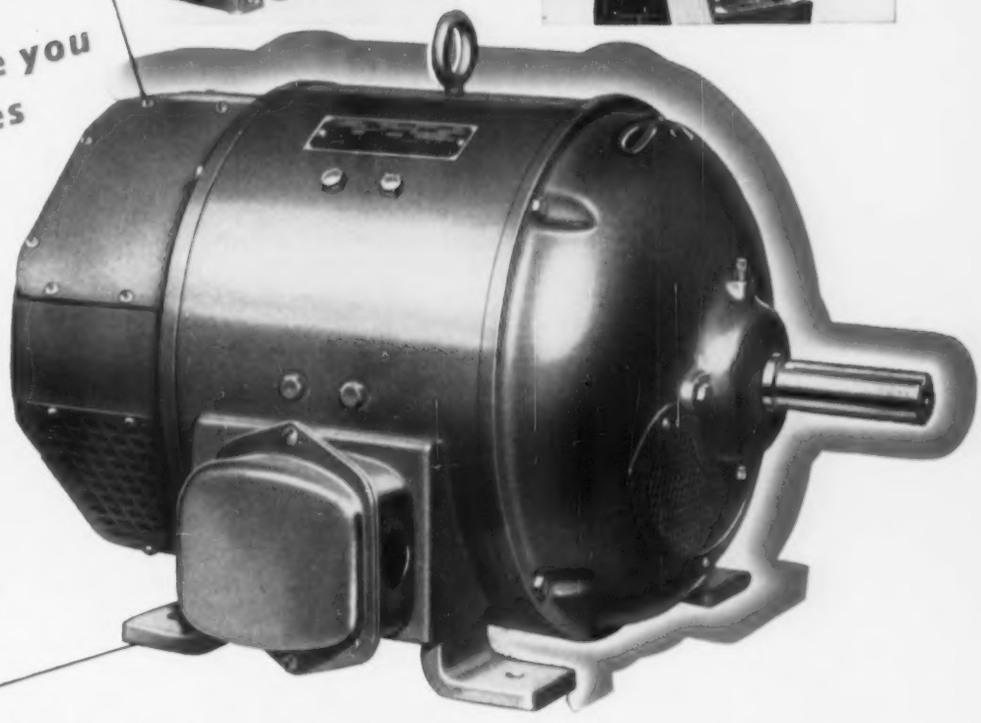


2

D.C. Motors give you these advantages

- Adjustable speeds
- High starting torques
- Smooth, fast acceleration of high inertia loads
- Small change in speed with change in load
- Fast stops, with dynamic braking
- Ample maximum torque for wide variations in load



and LOUIS ALLIS D. C. Motors give you a size and type for every industrial requirement

When you need flexibility you can't get from A.C. — when you need refinements of operation, to get rapid, accurate response — that's when experienced design men turn to Louis Allis D.C. Motors.

You can get standard Louis Allis D.C. Motors in sizes up to 200 HP and speeds up to 3500 RPM. They are furnished with shunt, series, or compound windings — for all standard and special voltages — with continuous or intermittent duty ratings.

Both special and standard sizes and types are available, with various electrical and mechanical characteristics — open, drip-proof, fully enclosed, splash-proof and explosion-proof enclosures can be supplied.

Louis Allis D.C. Motors are extensively used to drive hoists, machine tools, pumps, elevators, centrifugal casting machines, extractors, printing presses, stokers, conveyors and other equipment.

For the best solution, discuss *your* drive problems with the Louis Allis Engineer nearest you.

THE LOUIS ALLIS CO., *Milwaukee 7, Wisconsin*

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We specialize in SPECIAL MOTORS
Extractor Motor with Integral Blower
Special Arbor Type Motor
Splash-Proof Motor with Flange
Self-Cleaning Textile Motor
Gearmotor
Ajusto-Spede with Eddy Current Brake
Single Phase Pump Motor with Tripod Base
Sanitary Motor
Blower Ventilated Frequency Converter
Oil-Well Pumping Motor
Rolled Shell Shaftless Motor
Standard or special — we build it. Whatever electrical or mechanical modifications or features you need, there is a Louis Allis motor that will do your toughest jobs better.

MIDWEST MEDLEY, continued

Pres. **CARL B. LAUGHLIN.** Mr. Bushnell's territory comprises 9 states and Pittsburgh area. Jackson & Church is a joint owner of Tube Turns with National Cylinder Gas. . . . **RONALD E. MANSKE** is new supervisor of order processing under **MERLIN SKUTLEY,** asst. order dept. mgr., Nekoosa Edwards Paper Co.

NORTHEAST NOTES
Keith Elected Director; Luke is Mgr. at Luke

EDWARD W. KEITH, recently promoted to manager of mills for Penobscot Chemical Fibre Co., Great Works, Me., has been elected a director, according to **EUGENE H. CLAPP,** president. Also elected a director is **GEORGE R. ALEXANDER,** assistant treasurer. **WALTER V. WENTWORTH** and **LYNWOOD S. HATCH** resigned due to ill health. **HENRY S. HOOPER,** chief chemist, has been named to a new post, technical director, for Penobscot. . . . **JOHN A. LUKE** is new manager of West Virginia Pulp & Paper's Luke, Md., mill, succeeding **ALBERT M. KAISER,** assigned to technical studies relating to the company's $100,000,000 five-year expansion. Mr. Luke was assistant manager, business administration, at the Charleston, S. C. mill. He is a native of Tyrone, Pa., graduated from Yale in 1949. . . . **AMOR HOLLINGSWORTH, SR.,** chairman of the board and director of the Penobscot Chemical Fibre Co., has retired, due to ill health. . . . **ELMO G. HALL,** assistant training manager at Oxford Paper Co.'s Rumford, Me., mill, had an unusual vacation visiting Arctic Baffin Island and Eskimo villages close to the Arctic Circle. He says streams were so full of Arctic char you could almost walk across on their backs. . . . **RALPH K. CALDWELL,** former labor relations manager for Oxford, has been promoted to assistant personnel director and labor relations manager for the Rumford mill. . . . **C. GEORGE DANDROW** will head up a new job of vice president for customer relations, according to **A. R. FISHER,** president, Johns-Manville Corp. . . . New soda mill tour foreman at New York & Penn Lock Haven mill is **LEROY CHAPMAN** who replaces recently retired **FRANK SWOPE.** . . . **MANCILL**

"From ingot to fourdrinier wire"

QUALITY-CONTROL THROUGH THE LABORATORY

Shown here is a small section of our laboratory, which is housed in its own building and is completely equipped with the most modern instruments.

Its staff is dedicated to a two-fold purpose:

1. *Quality control during every phase of fourdrinier wire manufacture.*
2. *Constant study, research and evaluation for future progress.*

From the raw metals to your finished fourdrinier wires, we are proud to say they are *truly ours*—scientifically controlled from the ingot to the finished product.

EASTWOOD-NEALLEY CORPORATION
Belleville, N. J.

New H & D Managers

Appointments of three Divisional Prodn. Mgrs. for Hinde & Dauch Paper Co. are announced by E. A. Miller, Gen. Mgr. of Factory Prodn.

J. CHEATHAM ORCUTT (left), Prodn. Mgr. at the company's Richmond, Va., plant, will be in charge of production at Eastern Div. Factories; Edward M. Hennessy (middle) Prodn. Mgr. at the Chicago factory, will be responsible for Western Div. production. Under Mr. Orcutt will be plants at Watertown, Mass., Hoboken, N. J., Gloucester City, N. J., Baltimore, Richmond, and Gastonia, N. C. Mr. Hennessy will head plants at Cleveland, Buffalo, Detroit, Chicago, St. Louis and Kansas City.

RICHARD NULL (right) is new Plant Prodn. Mgr. at the Gloucester City, N. J. factory.

Hinde & Dauch, subsidiary of West Va. Pulp & Paper, operates 13 factories throughout the East, Midwest and South. Headquarters are at Sandusky, O.

Continued on page 26

Bingham "EVEN-FLO" PUMP

DISCHARGES WITH NON-PULSATING FLOW REGARDLESS OF VARIATION IN SUPPLY!

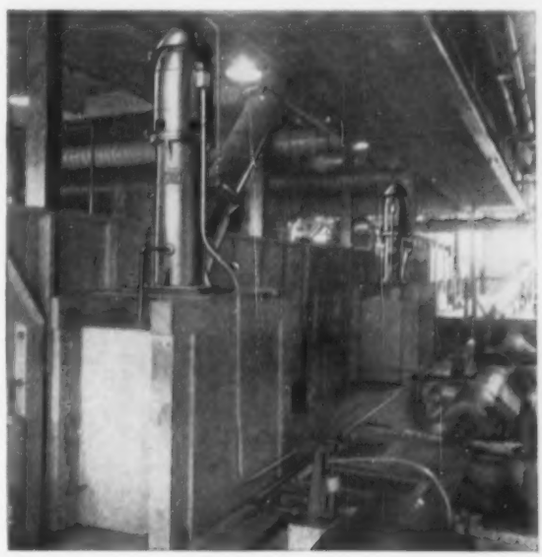
- **Cannot Become Airbound!**
- **Operates in Small Sumps with Little or No Submergence**
- **Maintains Constant Liquid Level in Sump with Varying Supply**

The BINGHAM "Even-Flo" Pump discharges pumpage with an even, non-pulsating flow, regardless of whether it is pumping at full or fraction of capacity. The *evenness* of discharge is not affected by surges in supply to pump sump. Maintains constant liquid level in the pump sump, regardless of variation in incoming supply.

The "Even-Flo" pump also handles liquids containing entrained air at the same uninterrupted, even rate of flow, without becoming airbound.

Available for any capacity. Call your nearest Bingham office for full information, or write for Bulletin 36.

Bingham "Even-Flo" Pumps are being used effectively in the Pulp and Paper industry for such services as: *Primary and Secondary Screen Transfer • Seal Pits for Barometric Legs • White Water and Stock Chests • Mill Sewage and Waste Liquor Sumps • Sludge Collecting Chests • Acid Sumps • Fan Pumps • Washers • Save-Alls*



A battery of "Even-Flo" Pumps installed for screen transfer service. The non-pulsating, even rate of discharge, which is a characteristic of these pumps, increases flat screen production as much as 30%.

Bingham SINCE 1921 PUMPS

DOUBLE VOLUTE RADIAL BALANCE

BINGHAM PUMP COMPANY

General Offices: **2800 N.W. Front Avenue, Portland 10, Oregon**

Factories: **Portland, Ore. • Vancouver, B.C., Canada**

SALES AND SERVICE OFFICES

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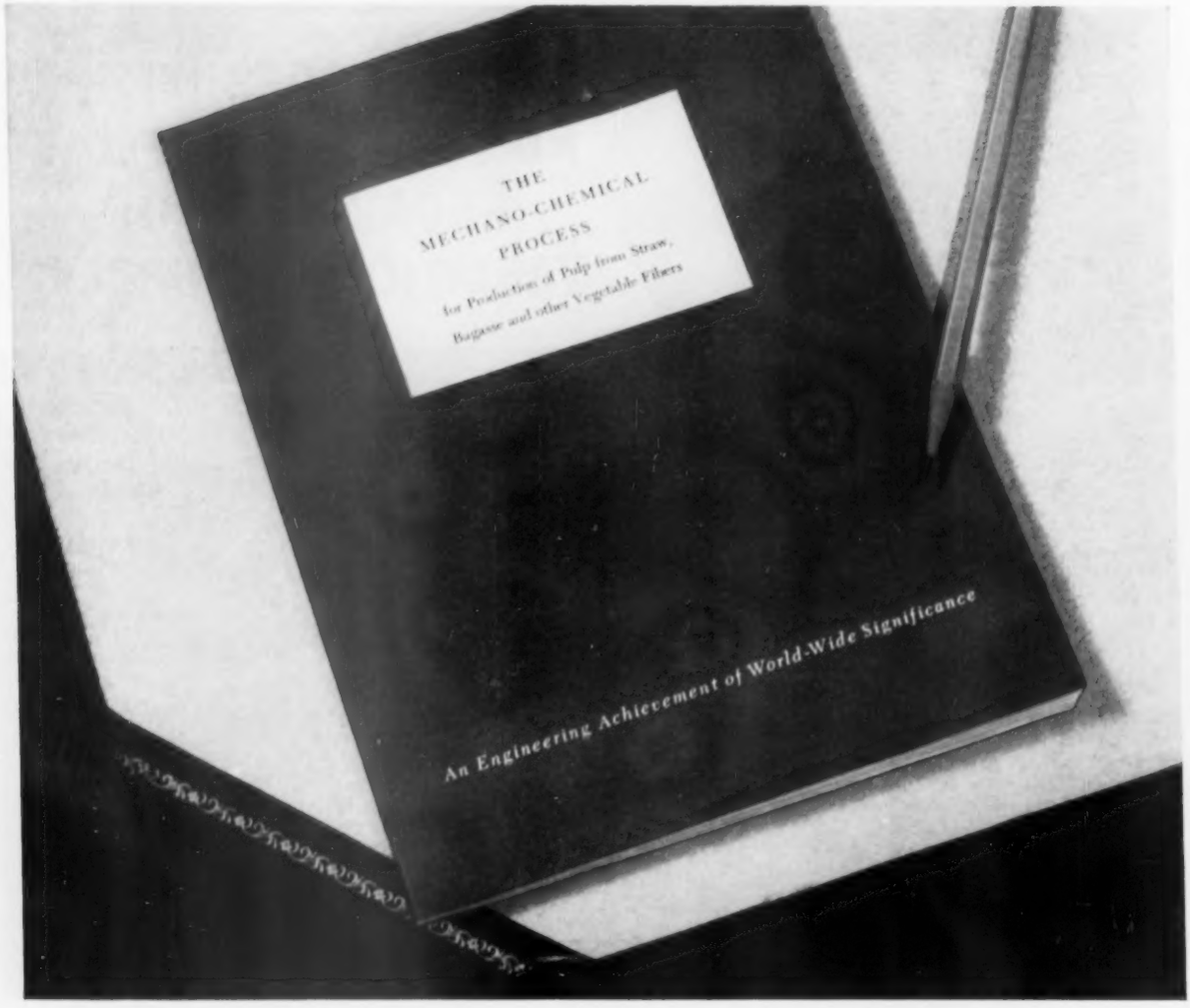
NEW YORK CITY, N.Y.	TORONTO, ONT., CAN.
PHILADELPHIA, PA.	VANCOUVER, B.C., CAN.



This 28-page report *contains facts of immediate importance to every decision-making executive in the pulp and paper industry. Send for it today.*

With installations of the Mechano-Chemical Process for the production of pulp from straw, bagasse and vegetable fibres totaling millions of dollars now going forward in leading mills in 7 countries—the detailed facts in this brochure become of special importance to pulp and paper executives concerned with current major developments.

Among the subjects covered in this report of the work of Dr. Lathrop and Dr. Aronovsky, developers of the process, are the history of the process, a technical description with a group of 3 simplified flow charts, the world-wide market picture, the patent situation, the facts behind the move of the U. S. Department of Agriculture in undertaking the experimental work to finalize a practical, economic, commercial method. This report reviews the findings of research and pilot plant with details of the higher yields, the lower chemical consumption, lower overall costs, smaller space requirements, the elimination of high pressures and temperatures, the machinery that accounts for increased speed of production resulting in a pulp for papers with higher bursting and tensile strength, greater folding endurance.

This brochure also contains samples of 7 different papers produced by the Mechano-Chemical Process.

To obtain your copy—write to the Parsons & Whittemore-Lyddon Organization, 250 Park Avenue, New York 17, N.Y. or 35 New Bridge Street, London EC4, England.

THE PARSONS & WHITTEMORE / LYDDON ORGANIZATION

World Leaders in the Development of Pulp Mills for the Use of Bagasse, Straw or Other Vegetable Fibres

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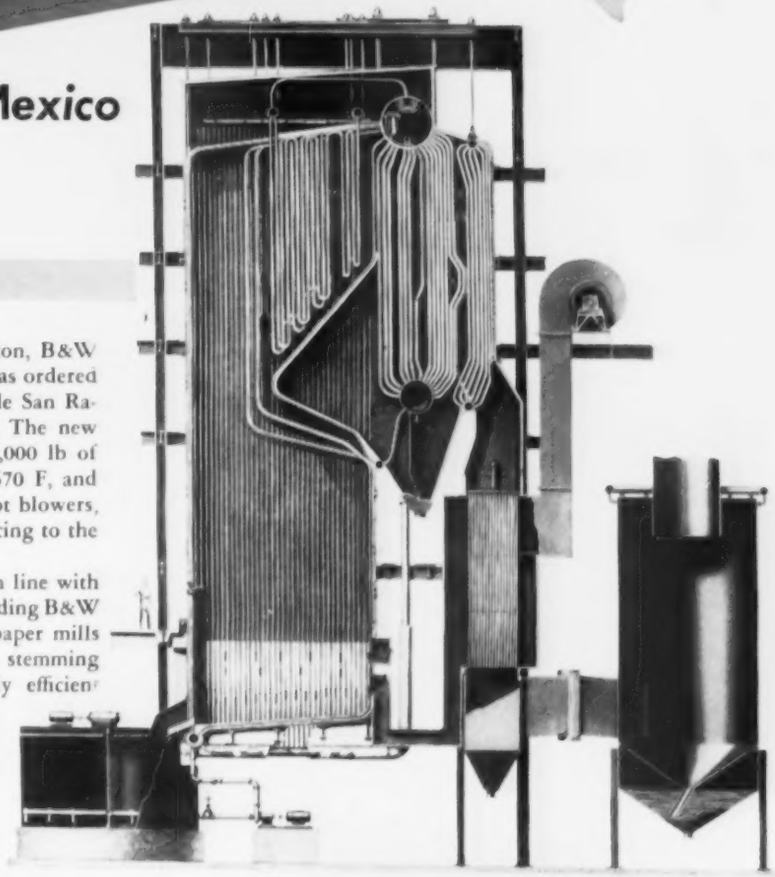
London EC4, England

# of B&W Recovery Units REPUTATION GOES A LONG WAY

...to Mexico

"South of the border," a 66-ton, B&W Black-Liquor Recovery Unit was ordered recently by Fabrica de Papal de San Rafael y Anexas, S. A., Mexico. The new unit is designed to deliver 31,000 lb of steam per hr at 475 psi and 670 F, and is equipped with automatic-soot blowers, which reduce routine hand-lancing to the minimum.

Destination of this unit is in line with a developing pattern that is sending B&W Recovery Units to pulp and paper mills in all parts of the world . . . stemming from a reputation for highly efficient chemical and heat recovery, with low-cost operation and maintenance, that has been service-proved since 1935.



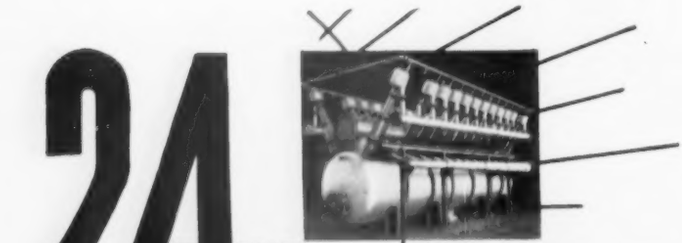
Typical B&W 2-Drum Recovery Unit equipped with B&W Cyclone Evaporator

BABCOCK & WILCOX
BOILER DIVISION

P-776

NORTHEAST NOTES, continued

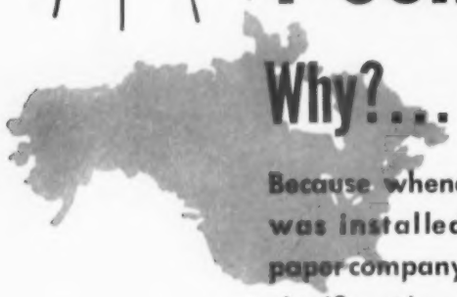
SMITH, assistant supt., Curtis Paper Co., Newark, Del., recently visited several New England paper mills. Mrs. Smith and daughter Beverly accompanied him. . . . **STUART W. SKOWBO** has been elected vice president and treasurer, Brown Co. **JOHN L. CLARK,** formerly with Stone & Webster Engineering Corp., has joined Brown as instrument engineer. Brown Co.'s president, **A. E. HAROLD Fair,** hobbies in photography. His son, Harold Jr., is in the pulp and paper business on the sales force of IP in Montreal. . . . **PAUL H. KOENIG** has resigned as vice president of P. H. Glatfelter Co. and Glatfelter Pulp Wood Co. He will continue as a director of both. . . . **P. S. BRALLIER,** recently director of market research and development for Stauffer Chemical Co. has been upped to technical advisor to the president, **HANS STAUFFER.** . . . New tour boss at Columbia Box Board Mills, Inc., No. 2 mill at Walloomsac, N. Y. is **FLOYD FOX,** who spent 27 years at Rocky River Paper Mills, Three Rivers, Mich. . . . **WARREN E. ADAMS** takes over the new post of director of new products at Personal Products Corp. of Milltown, N. J.



24 Deculators

purchased to date by . . .

1 Company



Why? . . .

Because whenever a Deculator was installed at one of this paper company's mills there was significant improvement in quality or production resulting from thorough deaeration of the pulp.

Rotareaed Corporation

REPRESENTED BY

Clark & Vicario Co.

Bronxville • New York

New Posts in Simpson

WILLIAM A. McKENZIE (left), has been named Chief Engr. for Simpson Paper Co., Everett, Wash., following a year's service at this mill. He moved to Everett from Shelton, Wash., in '54 to supervise new construction. He is credited with development of machines now making Simpson's new acoustical tile.

MELVIN W. OLSON (right), has been named Plant Engr. at Simpson at Everett, where he has been serving as Power and Maintenance Engr. and before that as a Supervising Engr. for modernization. Mr. Olson is one of many ex-Lake States industry men now in the Pacific Northwest, having been with Whiting-Plover Paper Co., Stevens Point, Wis.

PACIFIC PATTER

Dec. 1-3 Convention Chairmen; Morgan is P.A. for Oregon P&P

G. BOLNER, of a family long identified with supercalendering, has become supervisor of supercalender department of Oregon Pulp & Paper Co., Salem, Ore. He has been supercalender operator at Rhinelander Paper Co. and Nicolet Paper Corp. . . . **HARVEY V. OAKES,** former manager of automation marketing for RCA, has joined Crown Zellerbach Corp. as director of distribution under **REED O. HUNT,** vice pres. for operations. Mr. Oakes, U. of Oregon graduate, had previously been 18 years with Montgomery Ward. . . . **W. C. MACKIE,** located at Pasadena, Calif., is Coast technical sales representative for Rhodia Inc., producers of Alamask for masking mill odors. He attended U.C.L.A. . . . **JAMES MORGAN** is new purchasing agent for Oregon Pulp & Paper and Columbia River Paper Mills. He had been asst. p. a. to **GEORGE H. McCORD,** who resigned to join Penn Salt Mfg. of Washington. . . . **VIRGIL PETERS,** maintenance engineer of Halifax Paper Co. for the past year and in the Pacific Northwest industry for the prior 20 years, returned to west as plant engineer at Columbia River Paper Mills, according to Prod. Mgr. **CECIL TAY-**

Continued on page 30

This Busy Corner is the ...

PENNSALT PLANT AT TACOMA, WASHINGTON→

... Chemical Center of the Pacific Northwest

←PENNSALT PLANT AT PORTLAND, OREGON

PENNSALT CHEMICALS Serve Western Industry

LOCATED in the chemical center of the Pacific Northwest, PENNSALT'S two plants continue to make an important contribution to the development of the region. Basic chemicals for industry and agriculture are being supplied to an ever-growing number of chemical users... supplied from a source close at hand. This means important economies in transportation.

An alert and aggressive management has produced and developed many basic chemicals and chemical specialties to meet the needs of the West, Alaska and Canada.

PENNSALT'S rigid policy of QUALITY CONTROL means improved products for its chemical users and helps reduce costs. Dependable quality of product is our first responsibility and by this dedication PENNSALT will continue its progressive contribution to the great and expanding West.

Write today for free product bulletins on chemicals for industry and agriculture.

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PENNSYLVANIA SALT MANUFACTURING COMPANY OF WASHINGTON

Tacoma, Washington

Muriatic Acid • Sulfuric Acid • Hydrofluoric Anhydrous • Alumina Hydrate
Ammonia, Anhydrous • Ammonia, Aqua • Caustic Soda, Liquid • Caustic Soda, Solid • Caustic Soda, Flake • Potassium Chlorate • Sodium Chlorate
Liquid Chlorine • "Clor" • "Kryolith" • "Perchloron" • Sal Ammoniac

Griffith S.D.T. ROLLS

RUBBER COVERED

"Self-Doctoring Topress" Rolls

by

GRIFFITH of Portland

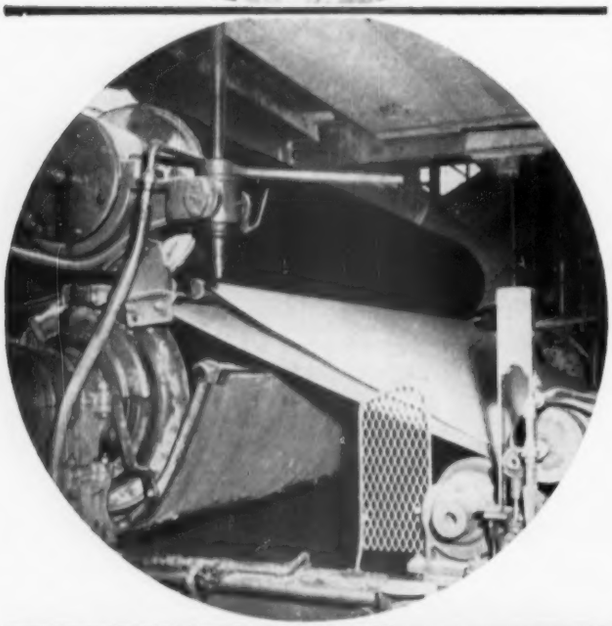
Helps Port Angeles Increase Newsprint Production

- 2% BETTER WATER REMOVAL OUT OF FIRST PRESS
- 400% LONGER FELT LIFE

Crown Zellerbach's No. 2 News Machine at Port Angeles, Washington, is equipped with a Beloit Pick-Up Transfer. In over 100 hours of continuous operation (since last start-up) no breaks occurred at this press. Machine speed is in excess of 1,700 feet per minute.

The top roll is resilient GRIFFITH S.D.T. Three other Self-Doctoring Topress Rolls are running in this three-machine mill. (All were purchased separately from GRIFFITH at Portland.)

GRIFFITH S. D. T. Rolls are also running on Kraft and Sulphite machines in many positions from Lumpcrusher to Sizing Presses.



Bottom Suction Rolls are rubber covered and drilled by GRIFFITH at Portland.

Write or Telephone for an Estimate on Your Job

Griffith RUBBER MILLS

2439 N. W. 22nd AVENUE
PHONE: BEacon 7126
PORTLAND 10, OREGON

Rubber Roll Specialists Since 1911

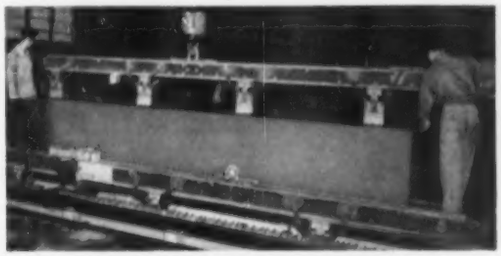
CF&I LECTRO-CLAD Nickel Plated Steel

Guards your product against contamination

Many product contamination problems are now being solved with CF&I LECTRO-CLAD. This new nickel plated steel is being used in many heavy industrial fabrications, such as tank cars, processing equipment, storage tanks, and many other containers for products that must be kept free of contamination or discoloration.

CF&I LECTRO-CLAD's contamination control properties compare very favorably with rolled nickel-clad steel or solid nickel; LECTRO-CLAD is much better in this respect than many of the protective coatings now used on steel.

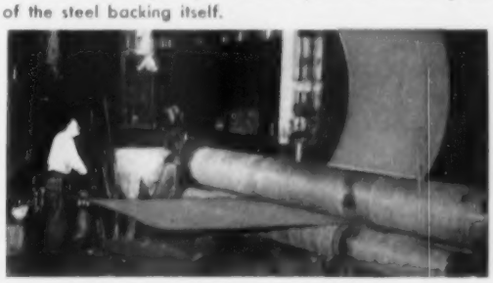
These photographs illustrate some of the manufacturing and fabricating techniques used with CF&I LECTRO-CLAD.



After the steel-backing material has been carefully cleaned and inspected, the nickel plating is applied by the patented Bart Process. This consists of electro-depositing a .006" to .010" coating of pure nickel uniformly over a steel surface.

After plating, the material is subjected to rigorous adhesion flame tests and a 180° bending test (shown here). These tests assure that the nickel bond will not fail even if the material is subsequently worked beyond the failure point of the steel backing itself.

CF&I LECTRO-CLAD provides the only heavy industrial nickel plating that permits fabrication by standard steel shop procedures. Here, manual arc welding is being performed on the nickel side with no damage to the plating.



CF&I LECTRO-CLAD possesses excellent working properties for rolling, forming, flame cutting, shearing and pressbrake operations. No special equipment is needed. Extreme tension or compression during forming will not disturb the nickel bond.

CF&I is now producing LECTRO-CLAD in the form of plates, sheets, pipe, heads and fittings. ***For complete details, write for our new Technical Manual on LECTRO-CLAD Nickel Plated Steel.***

Claymont Steel Products

Products of Wickwire Spencer Steel Division • The Colorado Fuel and Iron Corporation

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3010

PACIFIC PATTER, continued

LOR. . . . **ENDORE BERRY, Jr.**, sales engineer for Dorr-Oliver Inc., has been transferred from Oakland, Calif., to Seattle. . . . **JOHN R. GUILLIAMS** is now stationed in San Francisco for Wilson & Geo. Meyer & Co. He moved from Los Angeles. . . . **GEORGE ZINKEL**, formerly with Central F bre Products Co., Chicago, has joined Potlatch Forests Inc., Lewiston, Ida. . . . **LOUIS VAN ARSDALE**, plant engineer, Rayonier, Skelton, Wash., visited PULP & PAPER's headquarters in Chicago recently. . . . **GEORGE H. McCORD** resigned as purchasing agent of Oregon Pulp & Paper Co. and Columbia River Paper Mills to affiliate with Pennsylvania Salt Mfg. Co. of Washington effective Oct. 1. **JAMES MORGAN**, formerly assistant purchasing agent, has been named purchasing agent for both firms according to Production Mgr. **CECIL TAYLOR**. . . . **MAX A. BAILEY**, of Westminster Paper, chairman of the Coast Supts. Division, announces his convention staff for the Dec. 1-3 meeting at Hotel Winthrop, Tacoma: **J. B. BECK**, technical program; **BRIAN SHERA** and **A. C. McCORRY**, co-chairmen of housing committee; **ROBERT E. NOBLE**, registration; **NEIL ROBERTSON** and **SAM RUSSELL**, co-chairmen of entertainment; **JOHN. B. SUTHERLAND**, convention coordinator and Get-Together Party. **MRS. THOMAS E. MOFFATT** is chairman of the women's committee. Others on the committee are **HENRY W. DAUTERMAN** and **JACK V. SAVAGE**, vice-chairman of the division; **R. BURKE MORDEN**, secretary-treasurer, Division; and Miss **KAY FRALICK**, convention secretary. . . . **HOWARD NORRIS**, former resident engineer for Hooker Electrochemical Co., Tacoma, now retired, is currently a technical consultant at the Tasman Pulp & Paper mill in New Zealand, building a new chlorine plant using Hooker equipment. . . . **F. J. (Bill) HERB**, president of Pacific Coast Paper Mills of Washington, is a new director of Puget Sound Power and Light Co. . . . **TOM LEEDHAM**, supervisor of industrial engineering at CZ Camas since 1951, has transferred to Crown's San Francisco headquarters as assistant manager of industrial engineering. **RUSSELL LAWTON**, division industrial engineer of CZ West Linn mill, succeeds Mr. Leedham at Camas. **RICHARD C. CARTER**, Camas senior industrial engineer, was promoted to industrial engineer of West Linn division. . . . **RUSSELL V. HARKEMA** has been named general manager of the new

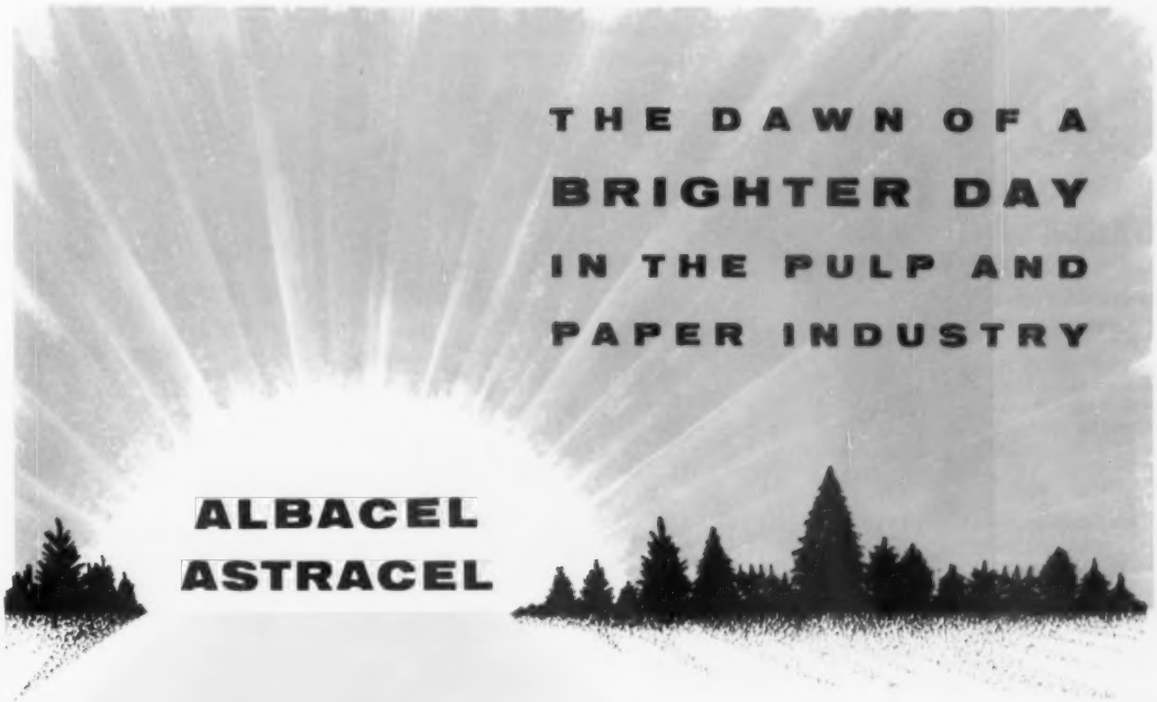
Continued on page 34

In News on Coast

New President of Esco, Ltd., is B. P. NYLINE (left), former Vice Pres. and Gen. Mgr. He is a Mining Engr. graduate of the U. of Minnesota and served in the U.S. Navy before coming to Canada in 1946 to join Electric Steel Foundry Co.'s subsidiary at Vancouver, B. C.

C. L. ("Chuck") NORDSTROM (right), after 3½ years with Simpson Paper Co., Everett, Wash., as Personnel and Safety Director, has been transferred to the Seattle sales office. Chuck, formerly in Crown Zellerbach personnel and a graduate of the Camas paper school, has a B.S. from Oregon State, where he played varsity football. WALTER S. FUNK replaces Mr. Nordstrom at Everett.

grain structure
Quality Control
Quality must be constructed into Fourdrinier wires, not inspected into them. A portion of every day's wire production is tested mechanically as well as metallurgically. The process must be kept in control; uniformity must be acceptable for weaving. The Lindsay Wire Weaving Company, Cleveland 10, Ohio.
LINDSAY WIRES Since 1904
FOR PAPER MANUFACTURING



Today's demand for brighter and whiter papers is a constant challenge to pulp mills to produce quality pulps with unusually high brightness and strength. Riegel Carolina continues to be among the leaders in meeting this challenge, taking full advantage of multiple stage chlorine dioxide treatment and other recent developments in the art of bleaching.

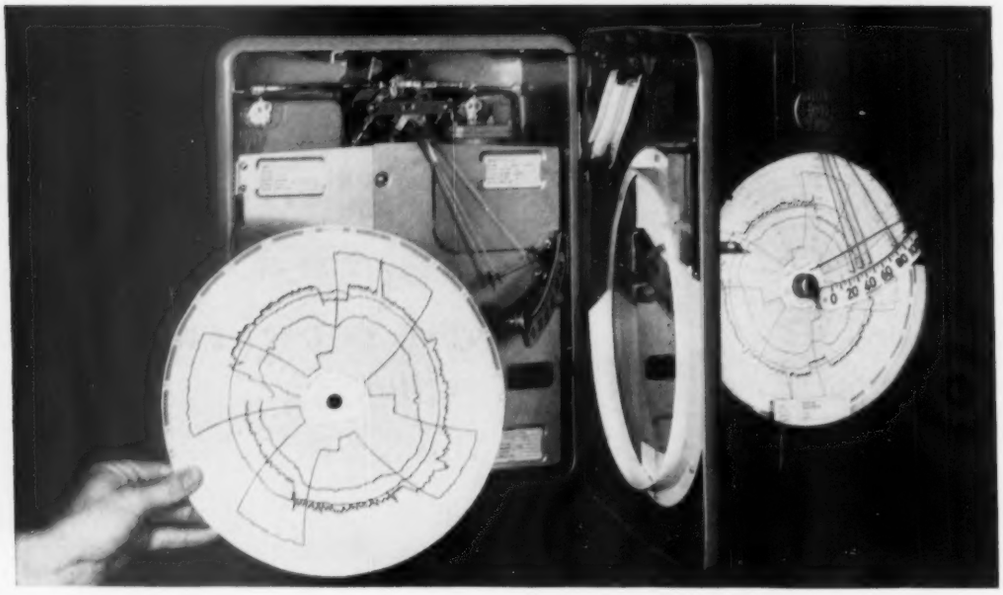
• • •

The demands of paper users become more exacting with time, but you may be sure that whatever these demands may be, you can depend on Riegel to provide pulp that will help you to meet them.

Riegel Carolina Pulps

ALBACEL • ASTRACEL

RIEGEL PAPER CORPORATION • 260 MADISON AVENUE • NEW YORK 16, N. Y.



Faithfully yours -

Clear, Continuous Records without Poisoning . . . on the New Bailey Recorder

★ Faithful chart records of measured variables are the key to a meaningful, dependable analysis of operating trends and conditions. Money spent for more accurate metering, for faster response, is money down the drain—*unless* it's matched with chart records that are equally accurate.

That's why these features of the new Bailey Recorder are important to you:

1. Bailey's exclusive sealed capillary-action inking system maintains continuous flow to the pen tip, and traces sharp, opaque, quick-drying records. "Poisoning" of intersecting records is practically eliminated; no blots or smears during operation or chart changing.

2. Pens are mounted on concentric centers, trace on parallel time arcs only 42/1000" apart. This simplifies analysis of two or more records.

3. Interchangeable plug-in receiver units permit practically limitless record-grouping combinations.

Write for Product Specification E12-5 and actual chart sample.

ONLY BAILEY OFFERS ALL THESE ADVANTAGES IN A SINGLE RECORDER

- Pre-calibrated plug-in receiver units
- Up to four pneumatic or electronic receivers —or two receivers and two integrators
- Any four variables on one chart—easily read and interpreted
- A full year's ink supply at one loading
- Faster shipment—from stock
- Minimum inventory of parts
- Minimum instrument investment for process cycle expansion or alteration

BAILEY METER COMPANY
1037 IVANHOE ROAD
CLEVELAND 10, OHIO
Controls for Power and Process

BAILEY METERS
Controls for
TEMPERATURE
PRESSURE
GAS ANALYSIS
FLOW · LEVEL
RATIO · DENSITY

A SOUND INVESTMENT ...for today and tomorrow!

Imperial

HIGH SPEED MILL-TYPE WINDER

For high quality rolls, for low operating cost, for dependable, trouble-free performance, and for speeds regarded heretofore as unattainable the sound investment is Cameron's Imperial . . . custom-fitted to serve any paper machine, with advanced design features such as:

Quick Set, Precision Slitters

Automatic Riding Roll and Rewind Bearing Lifts

Automatic Roll Ejector and Rewind Shaft Injector

Simple, Centralized Controls Direct, Easy Threading

FOUR MORE Imperial winders will go into news roll production before the year ends. And, already, *three more* Imperial Winders have been ordered for early 1956 delivery. The Imperial is designed and manufactured to stay well ahead of today's fastest paper machines . . . with reserve capacity for handling tomorrow's increased demands.

As *a sound investment* these new winders represent only a small fraction of the total cost of the mills which they will serve. Yet their performance and reliability will be the final measure of each mill's efficiency. Because of the relatively small cost of the winder, more and more mills realize that it pays to install the finest winder ever built. The Imperial is *a sound investment* . . . unmatched for speed, dependability, operating ease and quality of output.

Although introduced a relatively short time ago the Camachine Imperial already serves in leading mills on materials varying from lightweight fine papers to heavy board. In all cases the Imperial on-the-job has fulfilled every expectation . . . with ample capacity in reserve for future production increases.

INVESTIGATE the complete story of the Imperial as *a sound investment*. Let the facts show why the Imperial is the most productive, most adaptable and most durable mill-type slitter and winder you can own.

IT PAYS TO WIND UP WITH A Camachine®

AA-309

Cameron Machine Company · 61 Poplar Street · Brooklyn 1, N. Y.

PULP & PAPER

STRICTLY PERSONAL

PACIFIC PATTER, continued

Crown Zellerbach plywood division. He spent some eight years pioneering research and development of CreZon, the CZ paper overlay for plywood.

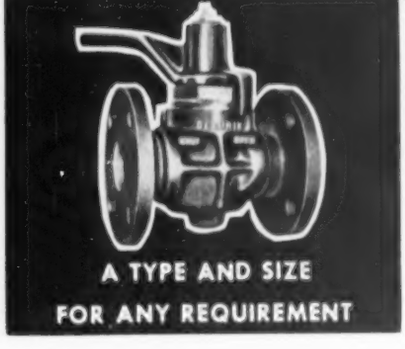
CANADIAN CAPERS

Foley on Power Co. Board; Rezba Moves to "Kap"

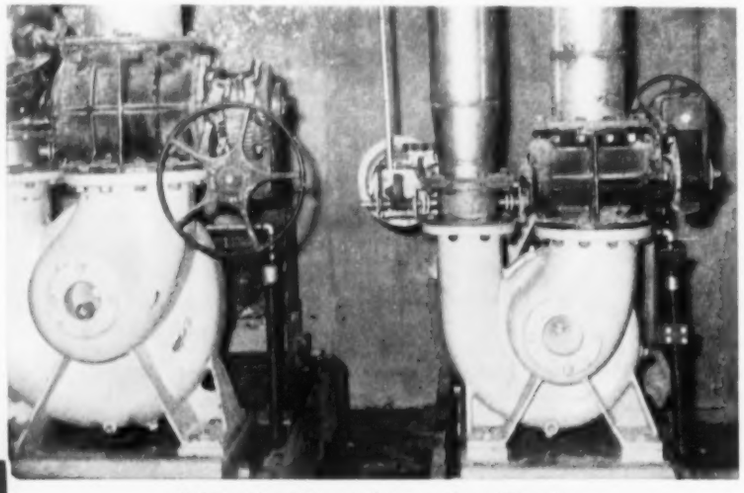
HAROLD S. FOLEY, chairman of Powell River Co., is a new director of British Columbia Power Corp., largest public utility company in Western Canada. . . . **JOHN REZBA** is new production supt. at Kapuskasing, Ont., for Kimberly-Clark tissue mill. He went there from Memphis, Tenn. . . . **FRED ENDERS**, president of Bulkley Dunton Pulp Co., visited British Columbia recently and met with several leaders of the industry there. . . . **A. W. BENTLEY**, formerly head of the woods department, Bowater's Newfoundland Pulp & Paper Mills, now retired and living in Victoria, B.C., was a witness before the Sloan Forestry Commission in Vancouver, outlining his views on forest administration. . . . **RUSSELL J. BARRETT**, vice president in charge of sales, Dominion Engineering Works, Ltd., Lachine, Que., has been appointed to the board of directors. He has been with the company since 1929 and has played an important part in providing paper machines and other equipment for Canada's recent mill expansion. . . . **GEORGE E. SHIPMAN** has been promoted to manager of Donnacona Paper Co.'s pulp and paper division. He was formerly general superintendent. . . . **J. S. MAXWELL**, who has been in Montreal as director of a new economic planning group within the executive department of Canadian International Paper Co., has been appointed assistant to the treasurer, International Paper Co. . . . **S. L. DeCARTERET**, chairman of Canadian International Paper Co., has returned from a visit to his homeland in Jersey, Channel Islands. . . . **A. E. CADMAN**, for many years secretary of the Canadian Pulp and Paper Association, has been elected Quebec representative to the Canadian Association of Lions Clubs. . . . **ALDEN J. L. AUBE** is new assistant electrical superintendent at James Maclaren Co., Buckingham, Que. . . . **F. H. BRUCE CHISHOLM**, formerly with Canadian International Paper Co. at Temiskaming, Que., has been transferred to the Southern Kraft division Mobile, Ala. . . . **DR. J. EDWARDS**, former vice president of manufacturing, Price Bros. and Co., and a co-inventor of the Curlator, has joined The Lummus Co. Canada Ltd., 455 Craig St. West, Montreal, according to **DAVID FULTON**, president. . . . **E. O. WOOD**, is new resident engineer at Ontario-Minnesota's Kenora Ont., newsprint mill. **J. W. G. BELANGER** is appointed Kenora engineer and **WILLIAM M. GOW** is new electrical engineer at the Fort Frances, Ont., newsprint and groundwood specialty paper mill. . . . **PAUL BROXON**, native Californian, has joined **DON JEFFRIES'** staff in Powell River Sales Corp., Los Angeles office. As a preparation for his selling job he spent some time at Powell River Co.'s big newsprint mill at Powell River, B.C. . . . Chairman of the N.Y.-Canadian Supts. Division is **J. E. CARRUTHERS**, mill manager at Interlake Tissue Mills, Merritton, Ont. **T. F. LAHAISE** of Imperial Paper & Color Corp., Plattsburg, N. Y. is 1st vice chairman; **LESTER J. SMITH**, Harrisville, N. Y., is 2nd vice; **MARC ROLLAND** of Rolland Paper Co., St. Jerome, Que., is 3rd vice and **Z. J. CHAGNON**, Albany Felt Co. of Canada, Cowansville, Que., secretary.

DeZURIK

EASY-OPERATING NON-LUBRICATED PLUG VALVES SPECIFIED IN SO MANY NEW MILLS FOR SO MANY SERVICES!



A TYPE AND SIZE FOR ANY REQUIREMENT



DeZurik Worm-Gear Valves on the white-water pumping system of the Weyerhaeuser kraft-mill at Everett, Wash.

The unique principle of DeZurik Easy-Operating Plug Valves . . . . their eccentric rubber-faced plugs that insure drip-tight seating under all conditions . . . . their ease of operation and upkeep, with NO LUBRICATION or adjustment . . . . these factors have made them the preferred valves in mill after mill, both new and old. There's hardly a mill where DeZURIK VALVES aren't on the job!

DeZURIK SHOWER COMPANY

SARTELL, MINN.

+

NITROGEN DIVISION ALLIED CHEMICAL

ANHYDROUS AMMONIA

= Up to 25% More Pulp From Your Present Equipment—and Save Money

Just minor adjustments to convert to Ammonium Bisulfite Pulping, as pioneered by the Nitrogen Division, and you get up to 25% more pulp from your present equipment. Screening rejects and screening time are both reduced.

HERE'S WHERE YOU GET MORE PULP:

More thorough and faster penetration reduces cooking time up to 19%. The entire operation becomes less critical. You also have less trouble cooking different species of wood.

HERE'S WHERE YOU SAVE MONEY:

You can reduce maintenance! Ammonium Bisulfite Pulping completely eliminates scaling of heat exchanger tubes, strainers and other fittings.

You save about 40 lbs. of sulfur per ton of pulp stock! With Ammonia the cooking acid combined can be lowered from 1.25 to 0.85 per cent.

You save on handling cost! Ammonia solutions are pumped directly into acid-making equipment, eliminating expensive handling of limestone in changing the towers.

There are still more advantages . . . advantages that lead pulp and paper specialists to call Ammonium Bisulfite Pulping the most important paper-making advance in three decades.

Ammonium Bisulfite Pulping is known best by Nitrogen Division engineers and technicians, pioneers in this process. For free assistance on converting to Ammonium Bisulfite Pulping call your nearest Nitrogen Division office.

Anhydrous Ammonia
Ammonia Liquor
Ammonium Sulfate
Sodium Nitrate
Methanol
Ethanolamines
Ethylene Oxide
Ethylene Glycols
Urea
Nitrogen Tetroxide
U.F. Concentrate—85
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Pioneer of Ammonium Bisulfite Pulping

NITROGEN DIVISION

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Allied Chemical

DOW

You Can See Why

SARAN LINED PIPE

is your answer to downtime losses

It's made of corrosion-resistant saran pipe swaged right inside rigid steel pipe . . . two pipes in one for longest-lasting performance.

Here's really trouble-free piping . . . saran lined pipe, fittings and valves! This modern piping has a durable inner lining that eliminates shutdowns due to corrosion . . . forms tight-fitting joints that prevent leakage. Saran lined pipe, fittings and valves won't burst under working pressures up to 150 psi . . . and saran lined cast steel fittings are available for even higher pressures. Every single piece of saran lined pipe, fittings and valves is carefully spark-tested by hand to be sure there are no pinpoint holidays or cracks in the lining.

Installation costs are low with saran lined pipe, fittings and valves, too. They can be cut and threaded in the field with modified pipe-fitter's tools. And because they're rigid, few supporting members are needed.

If your operation requires the conveying of acids, alkalies, solvents and other corrosive liquids, be sure to investigate saran lined pipe, fittings and valves today. For further information, write the Saran Lined Pipe Company, 2415 Burdette Avenue, Ferndale 20, Michigan, Dept. SP529E2.

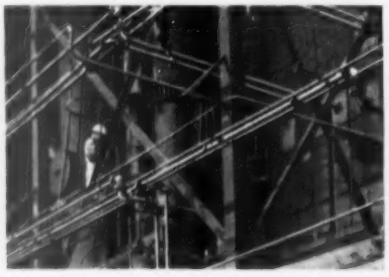
RELATED SARAN PRODUCTS—Saran rubber tank lining • Saran rubber molding stock • Saran tubing and fittings • Saran pipe and fittings.

SOME OF THE MANY INSTALLATIONS USING

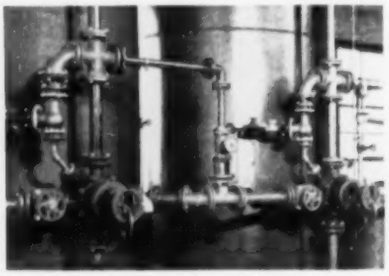
SARAN LINED

STEEL PIPE

Saran Lined Pipe is Manufactured by The Dow Chemical Company Midland, Michigan



Hydrochloric acid has been conveyed in this installation for well over seven years. Service has been eminently satisfactory.



Saran lined pipe is used here in an automatic water de-ionizer. This installation has also had a long record of uninterrupted service.

you can depend on DOW PLASTICS DOW

WOODPULP *Research*

Weyerhaeuser researchers devote constant effort toward finding better means to efficiently process woodpulp for papermakers in a competitive market. Stronger, better fibres result in paper and paper products unequalled for their superiority in either domestic or foreign competition. Woodpulp research is moreover carried on so that more *new* products from woodpulp can be economically manufactured.

Indeed, from woodpulp to paper is merely part of the story. From pulp to cellophane, photographic film, sausage casings, lacquers, plastics, smokeless powder, and endless other products would still not give the whole picture. Researchers are every day developing significant new products from woodpulp to improve our living.

It is therefore clear why the Weyerhaeuser Timber Company, through its research facilities and its scientific methods of tree farming and manufacturing, is dedicated to supply—without interruption—the woodpulp that industry requires.

PULP DIVISION **WEYERHAEUSER**

Get Better Formation—Longer Wire Life

Puseyjones "Y" Type Deflectors go a long way toward improved formation and increased wire life — particularly at medium and high speeds. In addition, you get many other advantages when you replace your first six or more conventional deflectors with Puseyjones "Y" Type Deflectors. Here are a few of these bonus advantages:

- Slacker wires can be run . . . wire sag between rolls is eliminated
- The hump over the rolls is greatly reduced . . . the level wire table gives less disturbance during the early formation period
- Pinholes, cloudy formation and "worming" are at a minimum . . . less air and water are carried into the table roll nip

The Puseyjones "Y" Type Deflector is really a small "making" board. The leading blade supports the wire and prevents water-throwing against the trailing table roll. The trailing blade also supports the wire and helps to prevent "stock jump." The wire rides on a film of water, with virtually no wear on its underside. Blade material is Ryertex or Micarta, supported by a lightweight but rigid stainless steel frame; both vertical and horizontal adjustments are at each end.

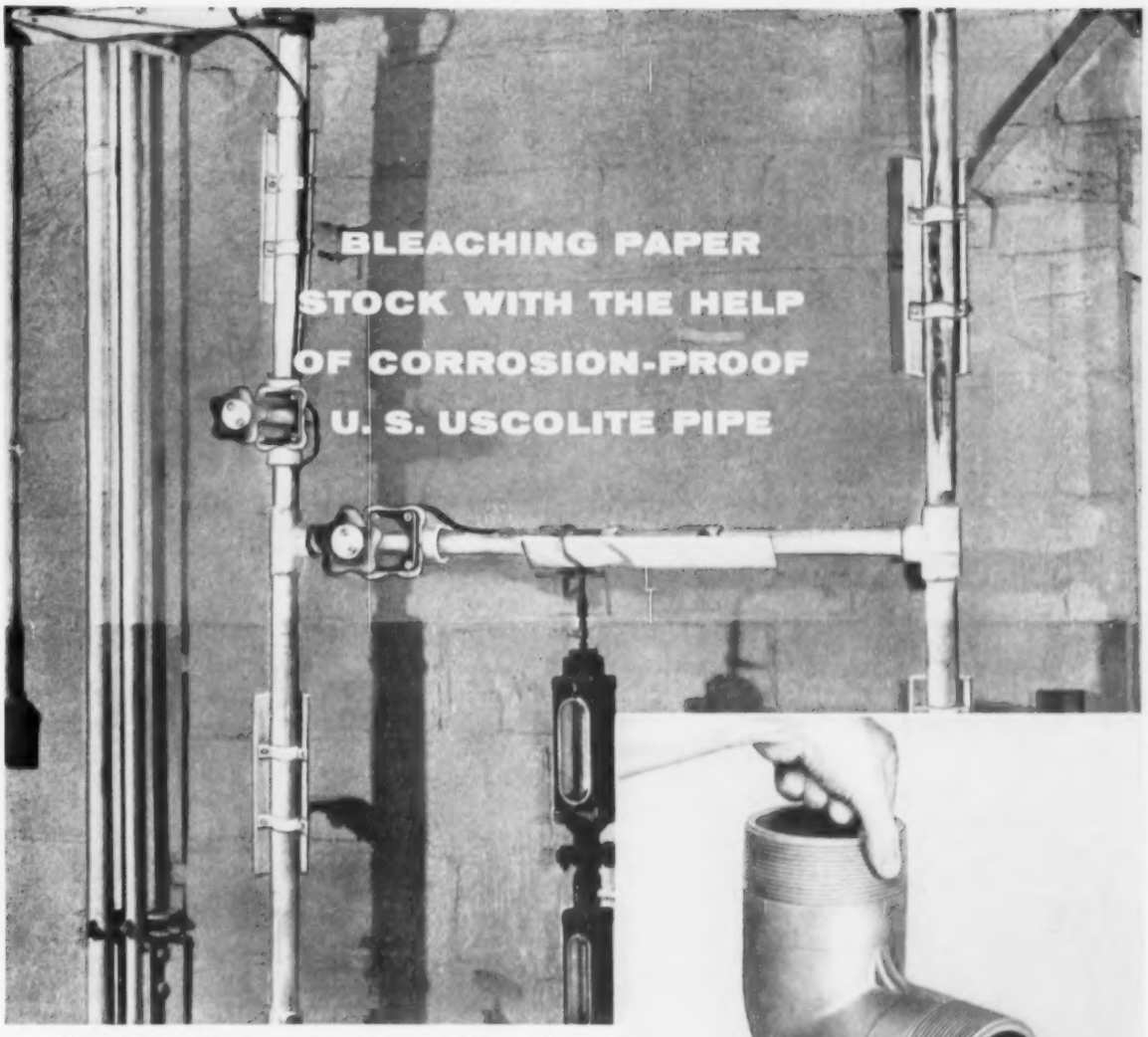
If you have a deflector problem, let Puseyjones engineers help you solve it. Call the representative nearest you, or write us today.

THE PUSEY AND JONES CORPORATION
Established 1848 : : Builders of Paper-Making Machinery

Fabricators and Welders of all classes of Steel and Alloy Products

Wilmington 99, Delaware, U.S.A.

THE SIGN OF TRADE MARK SUPERIOR QUALITY



Milk of lime rotameter, used in the control of the pH of the stock in a double-shaft mixer. The piping is U. S. Uscolite with Uscolite (Hills-McCanna) valves.

The paper mill, located in Pennsylvania, selected U. S. Uscolite® plastic pipe because it's immune to the corrosive chemicals used in the bleaching process, and requires *no upkeep*. The piping previously used just couldn't stand the gaff.

Made by United States Rubber Company, Uscolite is an extremely tough but lightweight thermoplastic pipe. It imparts no odor, taste or discoloration. It is threaded and assembled with ordinary piping tools—*without* special preparation. Uscolite is in use in thousands of installations in every industry where constant control of chemicals, acids or corrosion is a problem.

Uscolite pipe and fittings are made in the broadest and largest line of stock sizes on the market. Sizes run from ¼" to 6".

For replacement or completely new piping, get in touch with any of our selected distributors or any of the 27 "U. S." District Sales Offices or write to address below. Immediate delivery of standard sizes and threaded fittings. The Hills-McCanna Uscolite valve is available for your piping assembly.

"U. S." Research perfects it

"U. S." Production builds it

U. S. Industry depends on it.

UNITED STATES RUBBER COMPANY

MECHANICAL GOODS DIVISION · ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Hose • Belting • Expansion Joints • Rubber-to-metal Products • Oil Field Specialties • Plastic Pipe and Fittings • Grinding Wheels • Packings • Tapes
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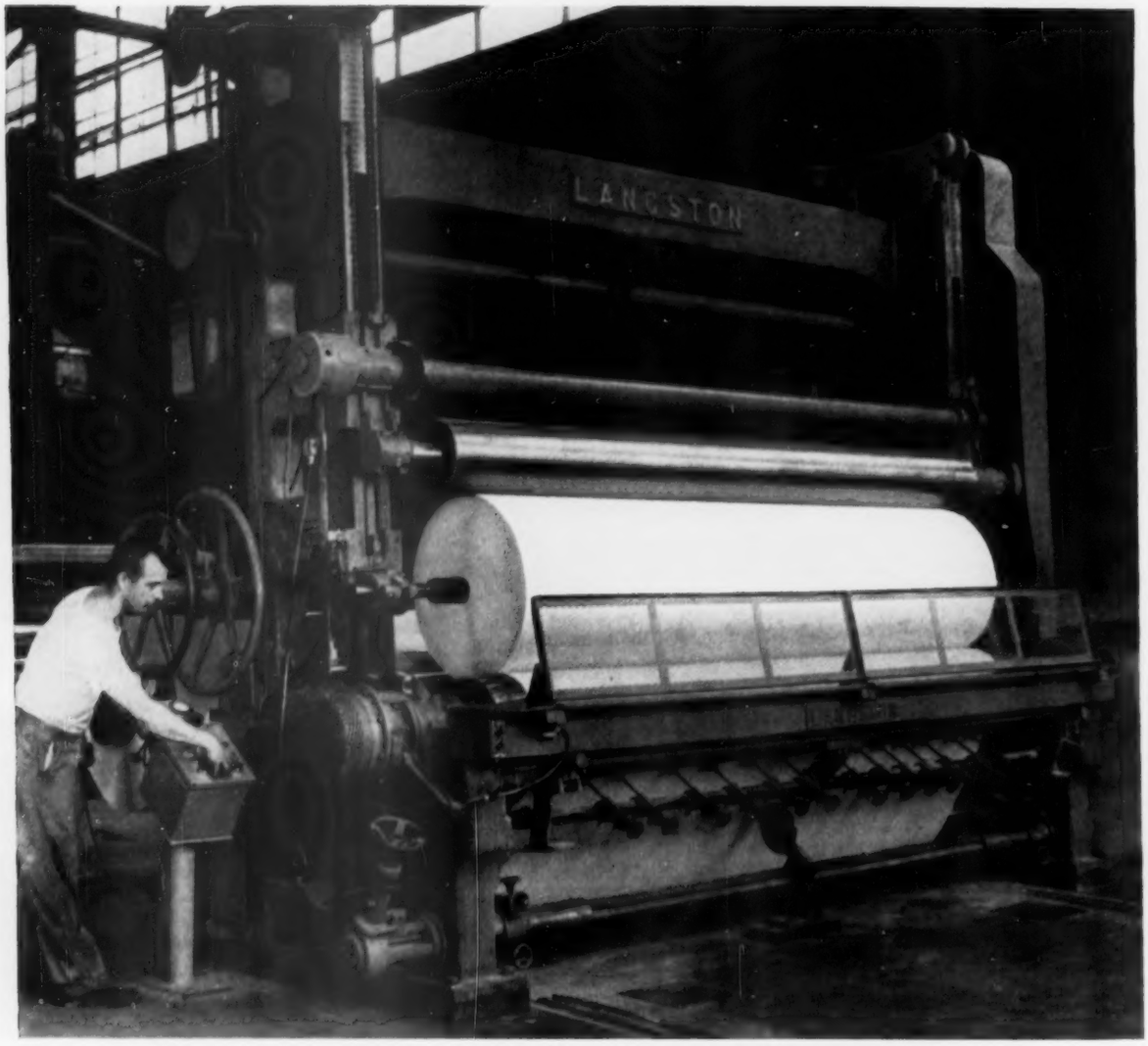


Easy operation of the machine is made possible by grouping controls on this convenient panel. Machine handles rolls up to 60 in. dia. and 4000 lb. weight. Here high-quality Hamilton papers are slit at 3000 fpm.

Langston Slitter & Winder

saves paper company $150 daily

"The automatic roll ejector feature alone is saving us around $4000 a year." This remark was made recently by C. M. Connor, manufacturing vice president of W. C. Hamilton & Sons, paper-makers of Miquon, Pa., just outside of Philadelphia, in reference to the new 115 in. Langston Slitter & Winder installed at the plant.

"In fact," continued Mr. Connor, "we expect the machine will pay for itself early next year, just from the savings it makes possible."

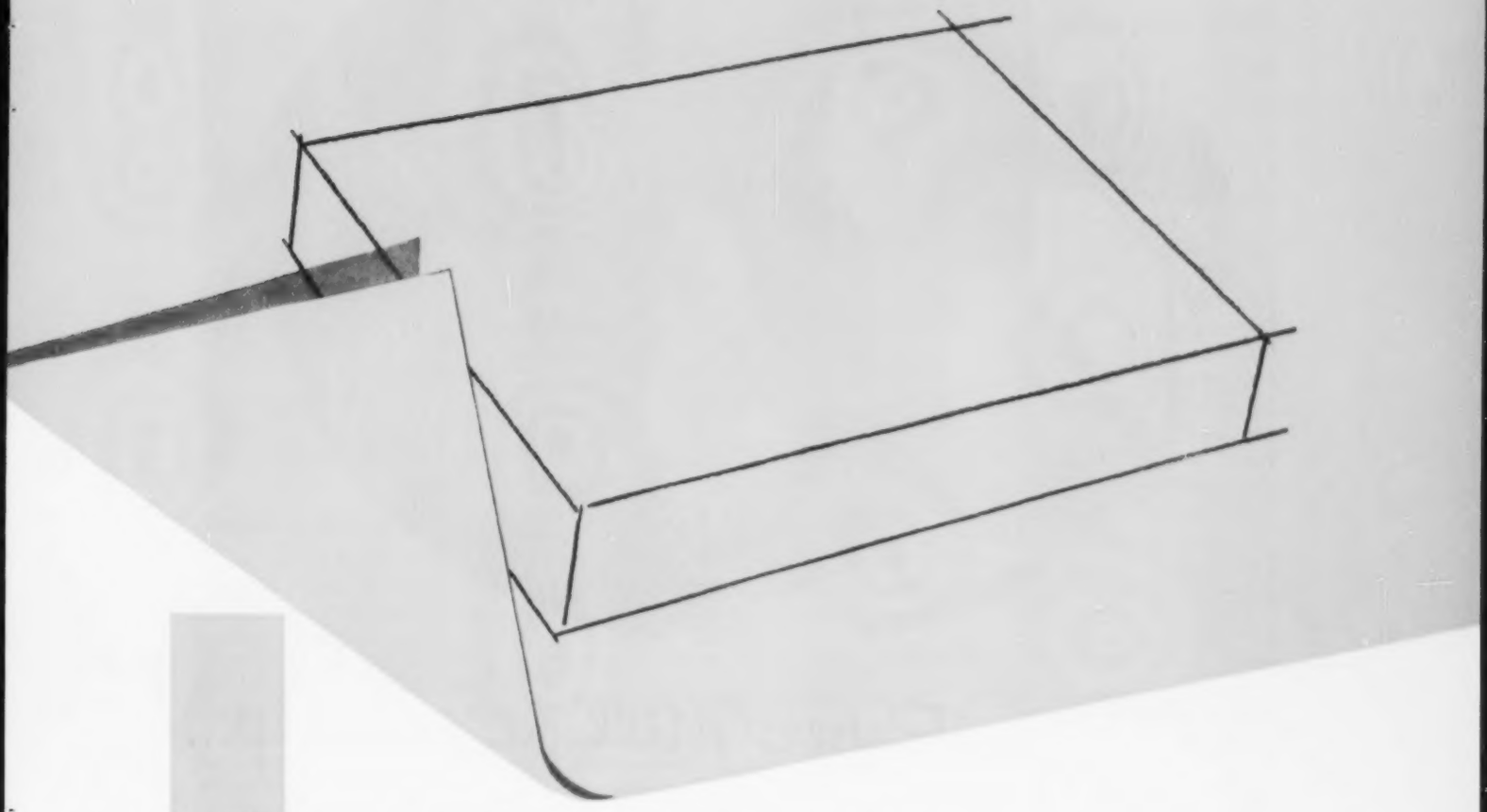
Instead of needing a crew of men to remove each roll from the machine by hand-operated hoists, now one man can do it by operating simple controls. Higher rewinding speeds have helped Hamilton step up production 10%. Better control of sheet has cut waste 3% and eliminated wrinkling.

Hamilton finds that the Langston shear-cut slitters make clean, sharp edges on all rolls and keep paper dust to a minimum. An automatic brake stops the roll quickly at the end of a wind, helps maintain proper paper tension.

Langston Slitters & Winders are available in sizes to 196 in. wide and 72 in. dia. Speeds to 4000 fpm and beyond. Find out how much you can save. Write SAMUEL M. LANGSTON CO., CAMDEN, 4, N. J.

LANGSTON *Leadership...by design*

From high-grade bonds to boxboards



Direct Fast Orange MR CONC

.....a light-fast, direct yellowish orange--economical to use--well suited for dyeing the widest possible range of paper types--an excellent base color for tan and russet shades.

With this non-dusting powder you are assured of minimum two-sidedness. Being a stilbene type, it is not bleachable with chlorine and thus holds interest for use on papers fast to ink eradicators.

Supporting every product we offer are the facilities--available to you--of our Technical Service Laboratories. This service is based on years of intensive laboratory research and years of practical mill experience. We offer full cooperation on all your paper coloring and paper matching problems; we invite your inquiry.

Write us for samples and technical literature; call upon our skilled technical service.

From Research to Reality

gdc gaf

GENERAL DYESTUFF COMPANY

A SALES DIVISION OF GENERAL ANILINE & FILM CORPORATION

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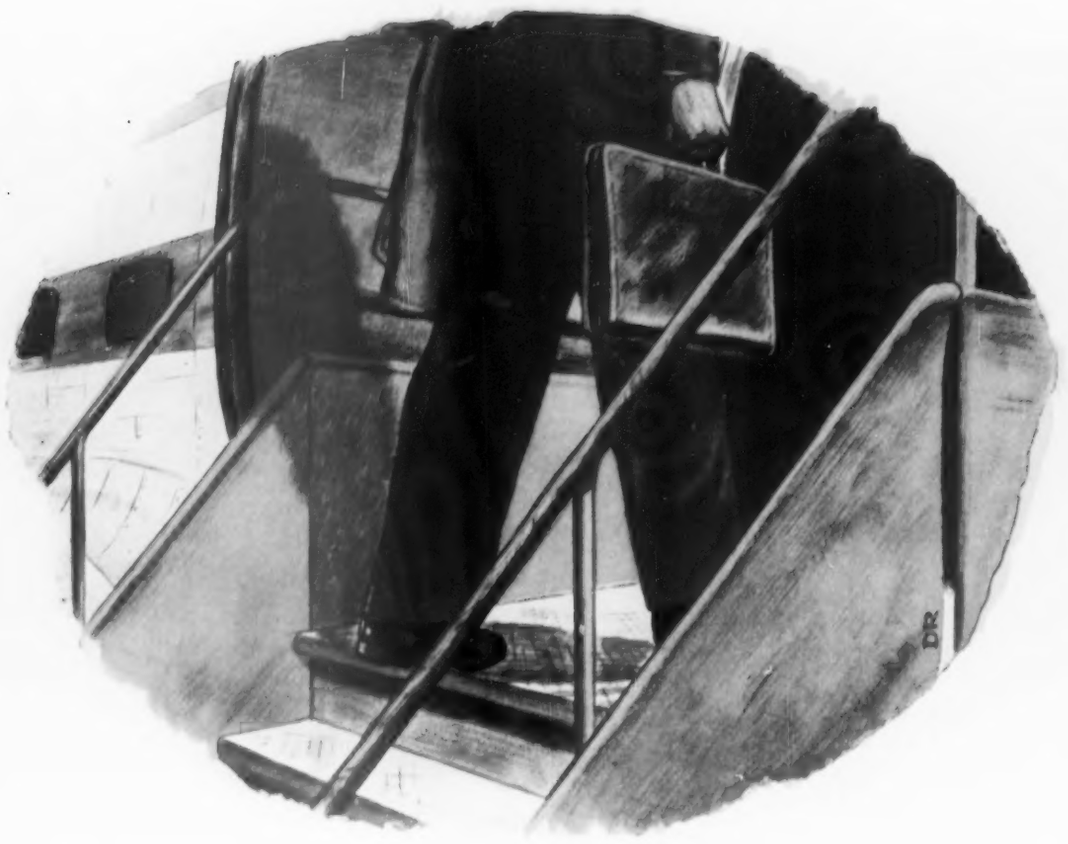


Because a Paper Mill needed help...

Foam was causing the dandy roll in a midwestern mill to pick up large quantities of both water and stock. Called in for help, a member of Nopco's technical staff sprayed Nopco® KFS on the wire in a solution, one lb. per ton of paper. The stock ceased to pick up; the water was reduced to a fine spray. So impressive was the demonstration, they hastily called the firm's president from a conference to "come and see." Naturally, the mill has now standardized on KFS.

☆ ☆ ☆

The technical service men of Nopco's Paper Division have just one mission in life—to help you. They'd be excellent men for you to know.

It may well be that some obstacle in efficient sizing, or foam dispersal, or pitch control, which has your staff stumped right now, is one that our laboratory removed only last month for some manufacturer a thousand miles from you.

In the pilot plant in Nopco's Research Laboratories, these men work constantly (when they're "at home") on practical problems submitted to them from mills the country over. They don't know all the answers yet, but they have helped many mills to produce a better sheet of paper, at lower cost.

Nopco was founded on research. It has grown to its present position by research—which simply means finding new and better ways to do things which need doing. But the knowledge thus gained, after all, does us little good until we share it with you. Our technical men are our medium of sharing it. Put your toughest problem up to them.

Nopco Chemical Company.

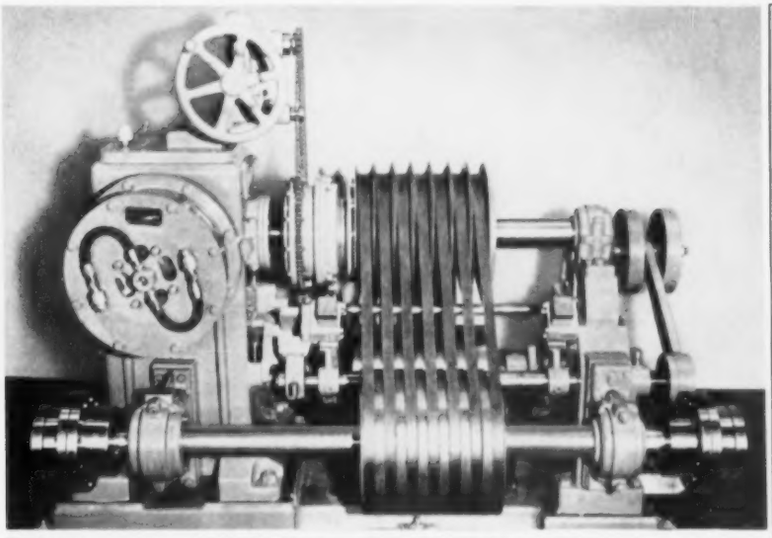
NOPCO

PLANTS: Harrison, N. J.
Cedartown, Ga. • Richmond, Calif.
London, Ont. Canada

LOOK TO NOPCO ALSO AS YOUR SOURCE OF SUPPLY FOR:

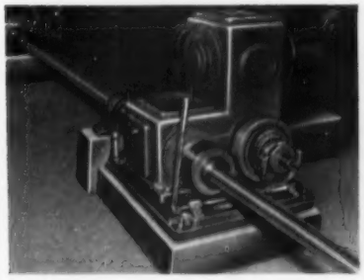
Foam Killers • Sulfated Oils • Wax Emulsions and Emulsifiers Emulsified Resins • Coating Compounds • Rewetting Agents Insoluble Metallic Soap Dispersions • Sheet Formation Aids Plasticizers • High Free Rosin Sizes • Pitch Dispersants.

MOORE & WHITE DRIVES for every purpose



Moore & White SYCO DRIVE

The improved Moore & White Syco Mechanical Drive is simple and compact in design—precision built, and automatically lubricated for efficient, trouble-free, round-the-clock operation. It precisely synchronizes sectional speed and preserves uniform tension on the sheet at all times. Uniform caliper and the desired basic weight and finish are assured throughout the run, at any selected setting. Breaks are few; down-time and wastage are minimized. You get increased production from your present paper machines — a more uniform, quality sheet at lower machine cost. Syco saves up to 50% of usable floor space — power consumption is decidedly lower. You'll find that maintenance costs are sharply reduced . . . that Syco is *safe* for machine operators.

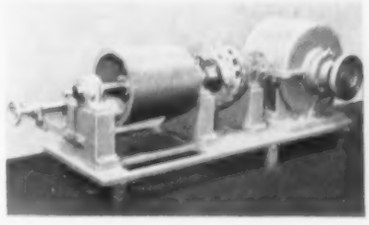


Moore & White VERSI-DRIVE*

This unique M&W drive is completely modern and offers you many important, exclusive features. It is engineered for maximum efficiency, compactness, economy of space, and accessibility. Versi-Drive is versatile, reliable, and instantly controlled . . . includes every possible safety factor for workmen. It is precision built to exacting Moore & White standards for dependable, trouble-free operation. Stoppages and down-time, which take such a toll of tonnage, are eliminated. It is designed to keep installation, operation and maintenance costs low. Highly adaptable Moore & White Versi-Drive is available in three sizes, in practically all speed ranges. Among the many operating advantages are positive power transmission, with precision draw control to the driven machine section.

Moore & White SPIRAL BEVEL GEAR DRIVE

This enclosed type spiral bevel gear drive has been expressly designed to meet paper mill needs without vibration or noise. The elimination of vibration is essential to high speed, good quality, and continuous operation. Latest type antifriction bearings and dependable lubrication conserve power. The drive consists of a touch shaft with suitable coupling to attach to the machine unit. A cast steel special bevel gear on the shaft engages a forged steel bevel pinion. Enclosed gears run in an oil bath to insure proper lubrication. Spiral cut of gear teeth entirely eliminates backlash and assures constant rotation to the different units. The cone pulley which receives the power from the cone on the line shaft is built with a wide face and a shallow taper to permit more accurate regulation of the draws and



lengthen the life of the belt. This efficient, power-saving drive costs little to maintain, and will increase your production.

Write us today for full information concerning any of these modern Moore & White drives, and for engineering aid. We'll be happy to help you solve any of your paper-making problems without obligation on your part.

*T.M. Reg. U.S. Pat. Off.

The MOORE & WHITE Company 15TH STREET AND LEHIGH AVENUE • PHILADELPHIA 32, PA.

CUSTOM-BUILT MACHINES FOR MAKERS OF PAPER AND PAPERBOARD

In the New England states, Moore & White is represented by Orton Corporation, Fitchburg, Mass. West Coast representative, Stephen Thurlow, Seattle, Wash.

Coming to Western Canada...

The first domestic source of chlorine and caustic soda

The goal is set for early 1957. For the first time you in British Columbia will have a local source of chlorine and caustic soda.

A new $11,000,000 Hooker plant will begin making these basic chemicals through the electrolysis of brine.

It will shorten your supply lines by hundreds of miles. It will give you faster, more flexible delivery, scheduling, and technical assistance.

The new plant will be built and operated by Hooker Chemicals Ltd. This is a subsidiary of the Hooker Electrochemical Company, a basic source of chlor-alkali chemicals for fifty years.

Another Hooker plant at Tacoma, Washington has supplied you with chlorine and caustic for many years. Barge and tank car delivery of these chemicals from Tacoma will continue until inauguration of the Vancouver plant.

Hooker's caustic soda storage facilities, already operating in Vancouver, will also assure you an uninterrupted supply of caustic until the new plant begins operations.

If you would like contract information and technical data on Hooker chlorine and caustic, write to Hooker Chemicals Ltd., 717 Pender St. West, Vancouver 2, B. C.

1905—Half a Century of Chemicals
From the Salt of the Earth—1955

HOOKER ELECTROCHEMICAL COMPANY

2 Union Street, Niagara Falls, N. Y.

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Check the titles of the Huyck Felt Bulletins you see on this page — and let us send you the copies you are missing. These Bulletins, prepared by Huyck's Research and Field Service Engineering Departments, give you up-to-the-minute facts concerning the use, operation and maintenance of papermakers' felts . . . the information you need for a ready reference felt "library."

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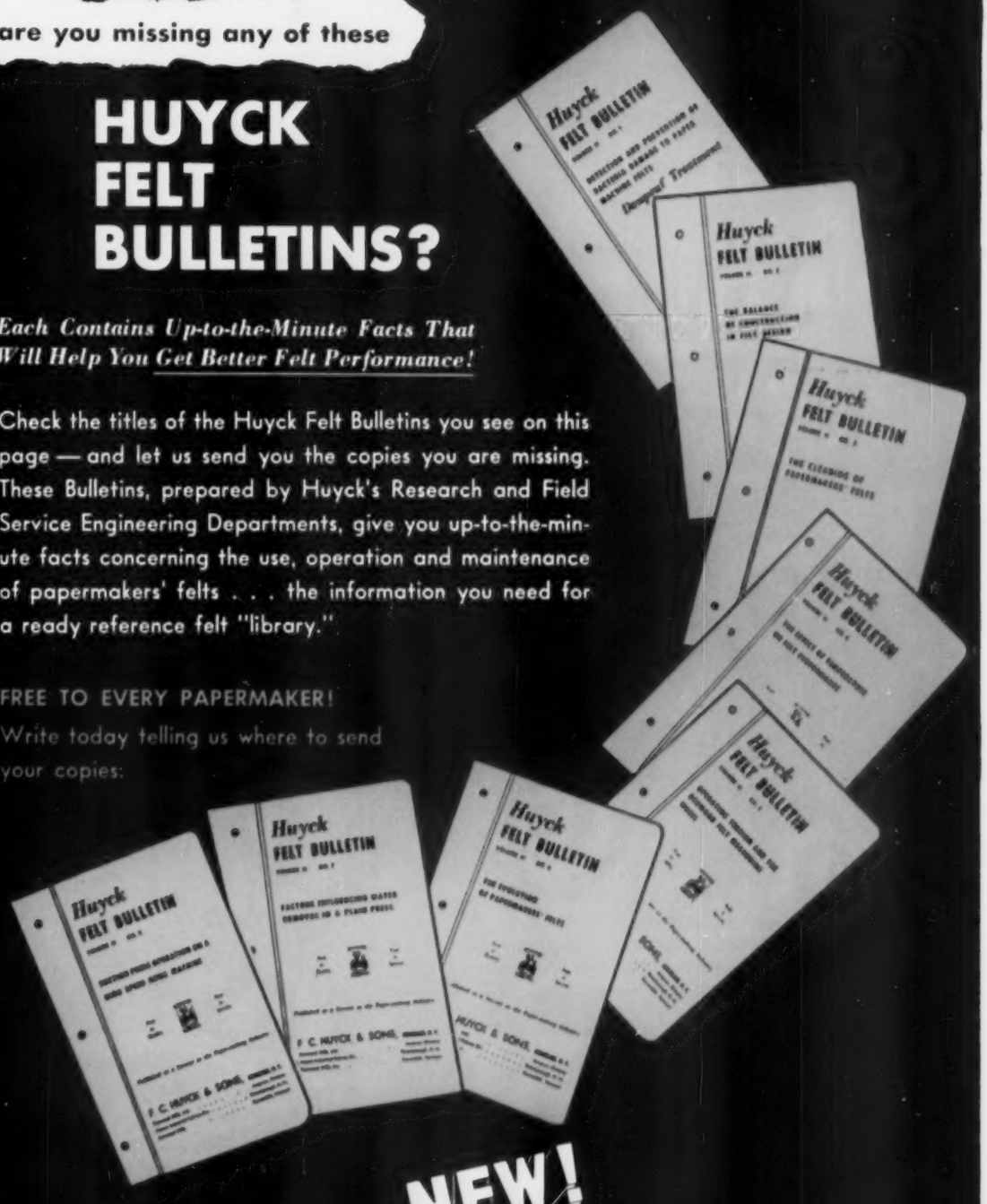


NEW! HUYCK FELTS

FIRST IN QUALITY... FIRST IN SERVICE

Another Huyck "First" designed to help you produce better paper at lower felt cost per ton.

F. C. HUYCK & SONS • Rensselaer, New York
Established 1870

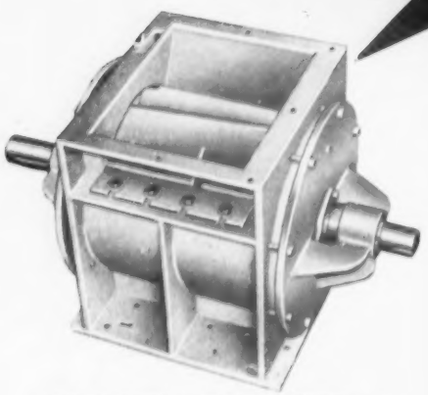
Streamline YOUR CONVEYING *and* SAVE 60% with a RADER HIGH PRESSURE PNEUMATIC SYSTEM

The modern method of conveying WOOD CHIPS, SAWDUST, HOG FUEL AND SHAVINGS is by economical RADER High Pressure Pneumatic System.

RADER can be adapted to any plant; pipes take little space . . . travel up and down walls, under roadways, and along simple supports, speeding materials with utmost efficiency between required points.

RADER conveyor systems are completely enclosed, preventing nuisance and waste. This saves costs of plant clean-ups, and also reduces fire hazards.

Many companies using RADER have achieved savings as great as 60% of the cost of alternative conveyors.



THE RADER "STAR" FEEDER has positive shearing action which prevents "overs" interfering with material flow. Unique method of venting air from returning compartments prevents "blow back."

A few of Rader's satisfied users are listed below:

- U.S. Plywood Corp., Seattle and Mapleton, Washington, Anderson, California.
- Hallack & Howard Lumber Co., Winchester, Idaho.
- Seaboard Lumber Co., Seattle, Washington.
- Weyerhaeuser Timber Co., Raymond and White River, Washington; Coos Bay, Oregon.
- Diamond Lumber Co., Tillamook, Oregon.
- Canadian Western Lumber Co., Fraser Mills, B. C.

LONG DISTANCE CONVEYING is easy for RADER. Chips from Pope & Talbot's Mill, St. Helen's, Ore., are moved swiftly to Crown Zellerbach storage silos 4700 feet away.

TWO OR MORE FEEDERS may be installed at various locations along the RADER Conveyor line, with only one blower required.

RADER HIGH PRESSURE LOADING compacts pulp chips when desired—saves 25% or more freight space.

INVESTIGATE RADER CONVEYOR ECONOMY TODAY

For full details and price estimate just advise us on these points: 1. Quantity and type of material moved. 2. Horizontal and vertical distances covered.

RADER PNEUMATICS, INC.

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In California: **Fred E. Barnett Co., Eureka, California** • *In Canada:* **Rader Pneumatics & Engineering Co. Ltd., 4572 Main St., Vancouver, B. C.**

ANNOUNCING A NEW COLD WATER SWELLING LYCOID®

Simple dry addition to beaters ...no cooking required

Stein, Hall & Co., Inc. announces a revolutionary addition to an already famous line of LYCOID® galacto-mannan colloids, which will save you time, money and equipment.

This *new* LYCOID® can be added dry directly to beaters, hydrapulpers and other pulping equipment because of its unique cold water swelling properties which completely eliminate cooking, and permit quick and easy dispersal.

New LYCOID® joins the already famous Stein Hall family of galacto-mannan colloids, long used by cooked addition to the wet end after refining. It was to be expected that the research facilities that have for so long developed one successful formulation after another for the paper field, should discover and perfect this *new* LYCOID®.

The unique advantages of the entire LYCOID® family are now available for all types of addition. Low concentrations impart striking improvement in formation on cylinder and Fourdrinier machines, acting as a fibre deflocculent, and resulting in increases in mullen, tensile, fold, erasure, Concora and stiffness, printability and many other specifications.

No matter how specialized your gallacto-mannan requirements, Stein Hall can formulate a LYCOID® to suit your exact needs.

For samples of LYCOID® or further information write the Paper Mills Department, PP-11.

STEIN SH HALL
285 MADISON AVENUE NEW YORK 17, N. Y.

Established 1866

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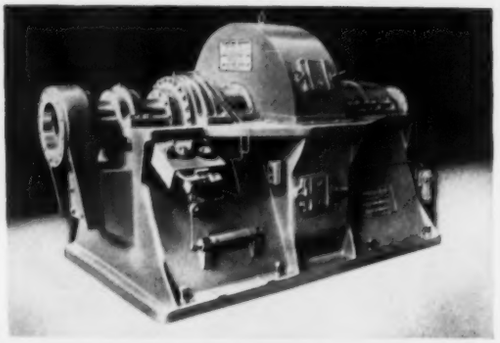
SUTHERLAND PRODUCTS FOR PULP PROCESSING

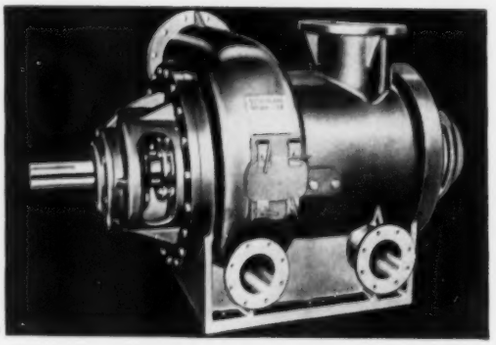
SUTHERLAND REFINER

Experience gained in the operation of more than 500 Sutherland refiners is available to help you solve your refiner problems.



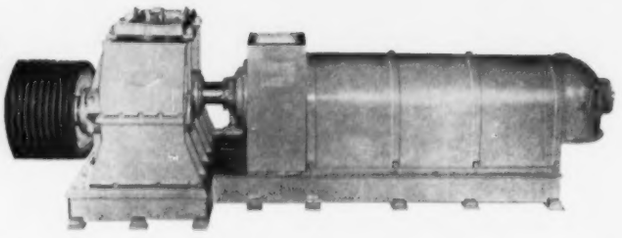
SUTHERLAND BREAKER TRAP

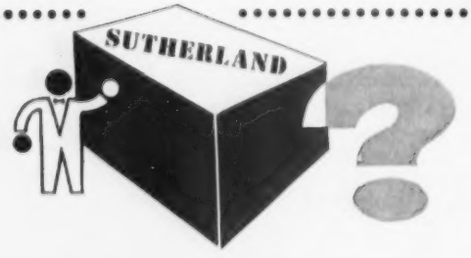
The only machine specifically designed for the selective defibering of paper pulp.



SUTHERLAND PRESSURE WASHING SYSTEM

Higher operating efficiency is accomplished with specially designed presses—a real advance in the washing field.





SUTHERLAND RESEARCH
soon will have something new for you.
WATCH FOR IT.

SUTHERLAND

REFINER CORPORATION
TRENTON 8, NEW JERSEY

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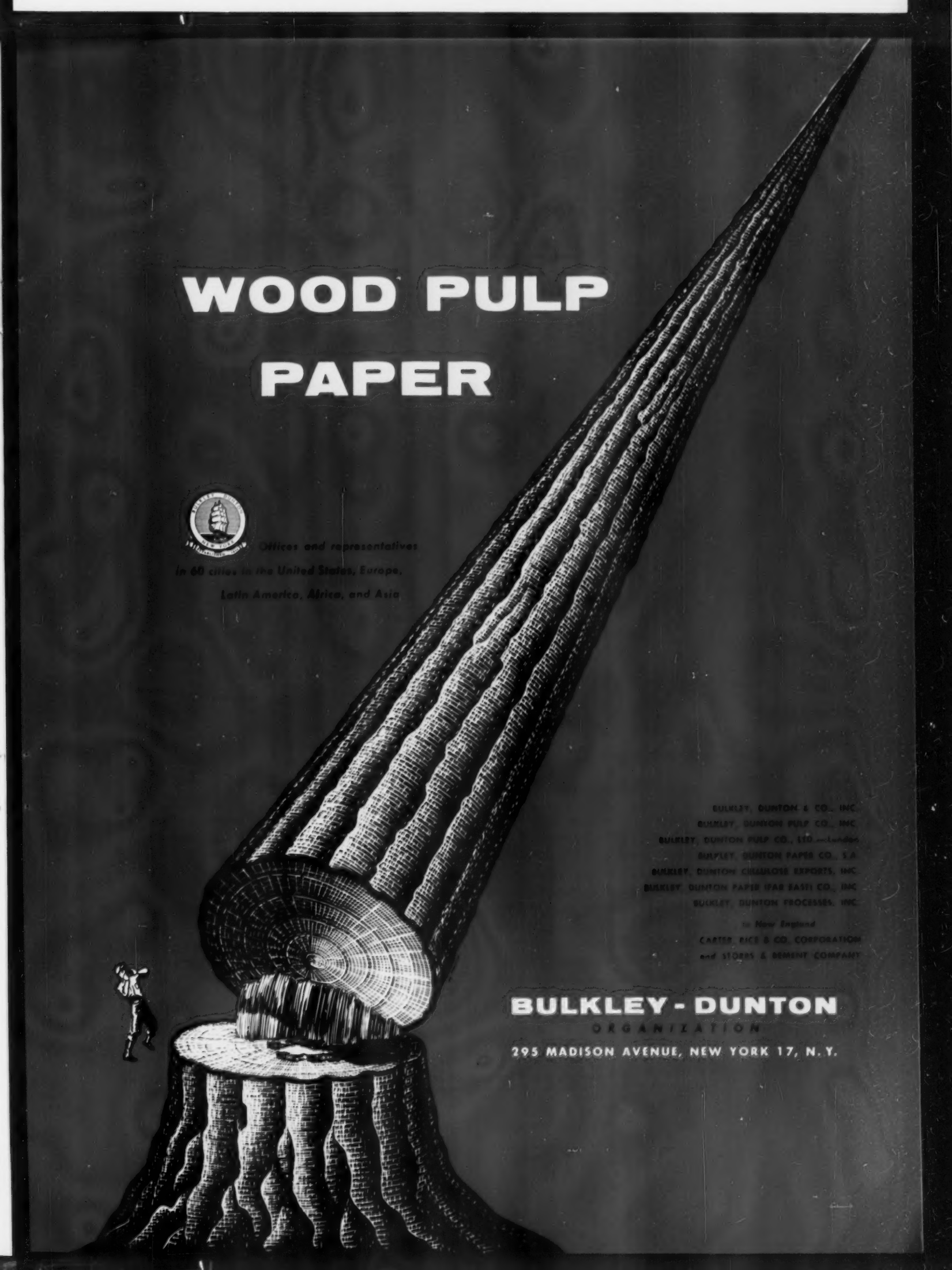
WOOD PULP
PAPER



Offices and representatives in 60 cities in the United States, Europe, Latin America, Africa, and Asia

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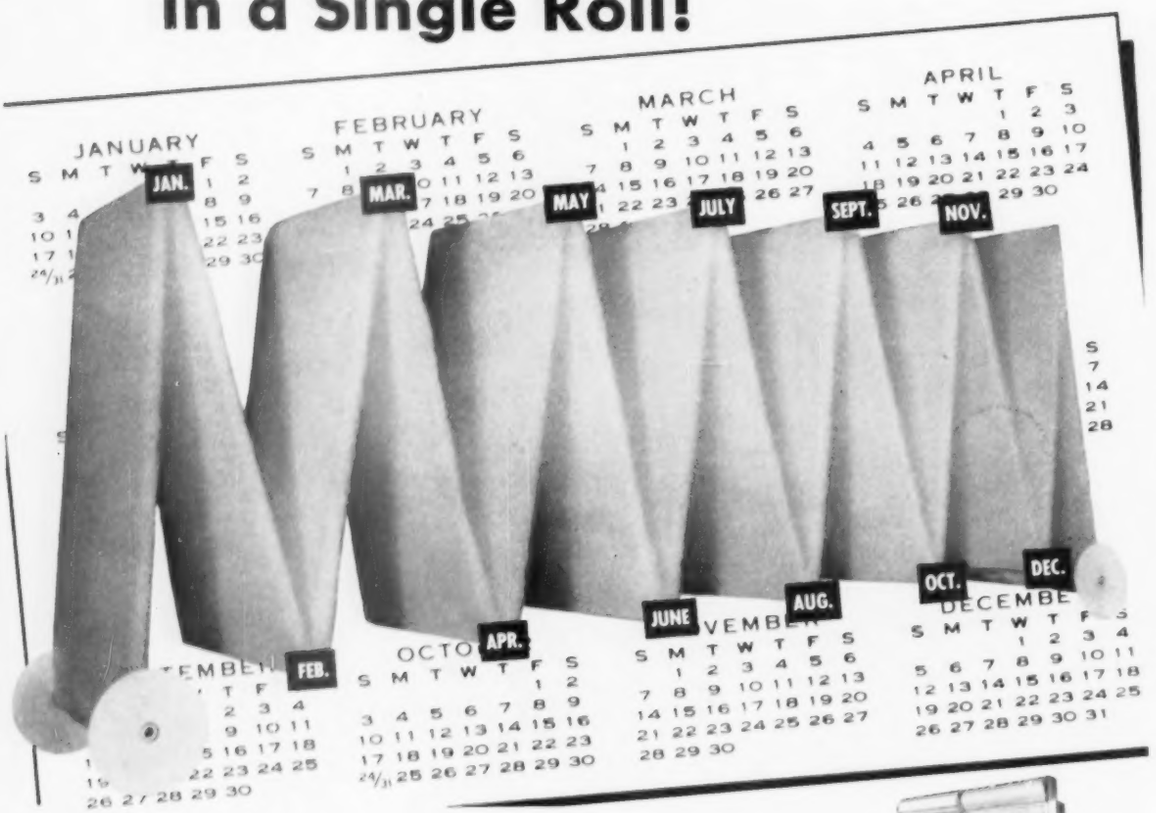
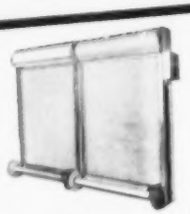
Year's Supply of Clean Air in a Single Roll!



Self-servicing ROLL-O-MATIC reduces filter maintenance to an annual event



It's just this simple. The above filter curtain, when installed in a ROLL-O-MATIC section up to 11 ft. high (18,000 cfm), represents a full year's supply of media under normal operating conditions.

Naturally, this is no ordinary filter curtain. It's a "blanket" of bonded glass fibers 5 ft. wide and 65 ft. long. But, presto—when wrapped on a spool it becomes a roll only 13" in diameter. Its cost—about half that of disposable filters of equal capacity.

Installation and operation of this media is much like that of a roll of film in a camera. Mounted at top of the ROLL-O-MATIC, it moves as a curtain down the face of the filter and is re-rolled at the bottom. Movement to maintain desired operating resistance is controlled by an automatic timer.

Is it practical? Scores of ROLL-O-MATICS are already in service rolling up new records for low cost, maintenance-free operation. Ask your local American Air Filter representative for ROLL-O-MATIC Bulletin No. 248.

AAF herman nelson

American Air Filter
COMPANY, INC.

American Air Filter of Canada, Ltd., Montreal, P. Q. • 297 Central Avenue, Louisville 8, Kentucky

Since the day it opened, East Texas Pulp and Paper Company has employed the *best* methods to produce the *best* products for you. By using the proven Mathieson Chlorine Dioxide (ClO_2) bleaching process we are able to furnish you with a very "high brightness" pulp, exceptionally clean, and with retention of full strength characteristics.

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Pulp and Paper Company

Evadale, Texas — Telephone Silsbee, Texas, Evergreen 5-3711

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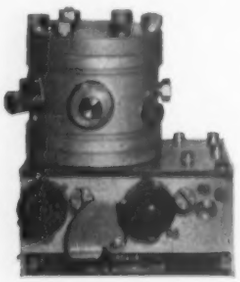
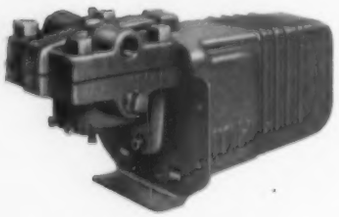
Eastern Sales Office
122 East 42nd St., New York City
Telephone OXford 7-2980

Condenser Temperature Controller

2-Pen Pressure Controller and Differential Pressure Recorder



Tel-O-Set Controller



Differential Converter

Honeywell automatic control *for* ***Ross Midwest Fulton Drainage System*** improves dryer

Outstanding features of control system:

Foolproof operation

Minimum pressure differentials between sections are maintained automatically by tamper-proof adjustments. The only way for the operator to override these adjustments is to switch to manual control.

Improved quality

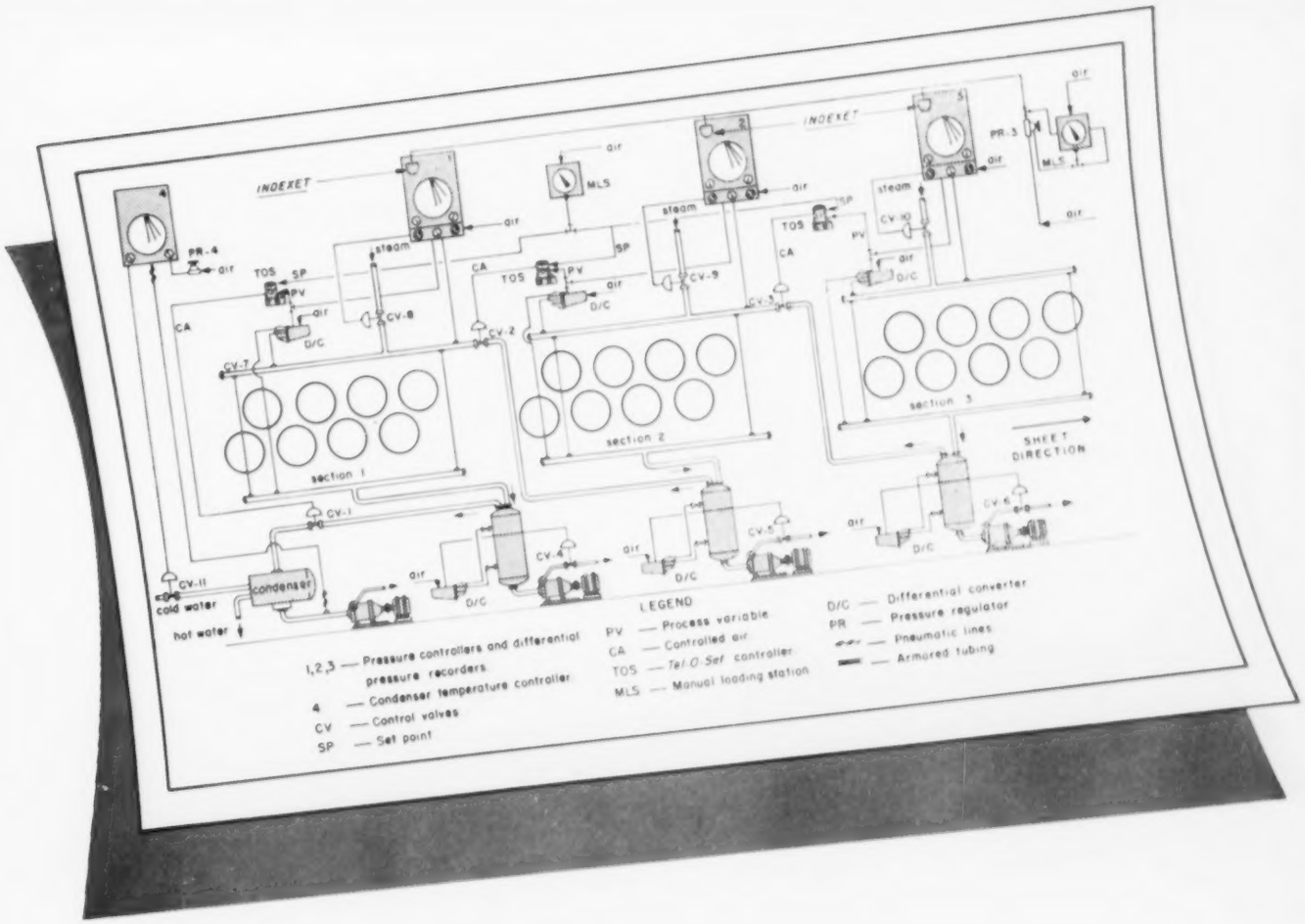
Break switches can be tied into the system to lower by a preset amount the #3 section's set point, and raise it after the break to the original setting . . . all automatically. This minimizes the amount of overdried paper on the next threading.

Fewer instruments

Only one recording controller is required per section to record and control section pressure and record differential pressure across the section.

Automatic control

The ultimate in automatic control is provided to give the most accurate control over the full range of pressures and flows. This reduces the need for the operator to go to manual control



operation . . . saves steam

A NEW Honeywell control system for dryer drainage systems provides papermakers with outstanding benefits. Engineered specifically for Ross Midwest Fulton Corp., the instrumentation represents a basic control system which can be changed to fit the requirements of any given installation.

Integrated Honeywell instrumentation assures high control accuracy. Sensitive Brown 2-Pen Pressure Controllers and Differential Pressure Recorders, a Brown Condenser Temperature Controller, plus Honeywell *Tel-O-Set* Controllers and *Differential Converter* transmitters are all geared to operate the dryer drainage system at peak efficiency . . . to reduce steam consumption automatically.

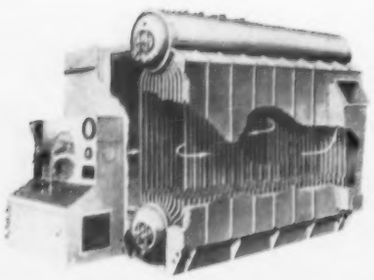
Automatic moisture control can also be tied into this system, simply by replacing the manual loading station on the Number Three Section with a *Moist-O-Graph* Control System.

The ultimate in flexible automatic control, the new system is designed to eliminate all but the absolutely essential manual operation. Interlocking controls make the system simple, easy to understand and operate by mill personnel. The entire system can be regulated from one knob, or each section can be regulated independently from its individual controller.

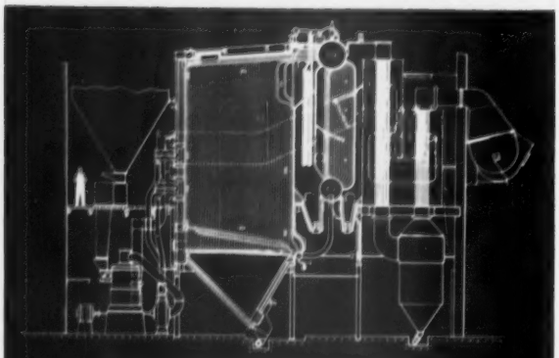
Your Honeywell sales engineer will be glad to discuss automatic temperature control for your drainage system in cooperation with Ross Midwest Fulton. Give him a call . . . he's as near as your phone.

MINNEAPOLIS HONEYWELL REGULATOR CO., *Industrial Division*, Wayne and Windrim Avenues, Philadelphia 44, Pa.—in Canada, Toronto 17, Ontario.

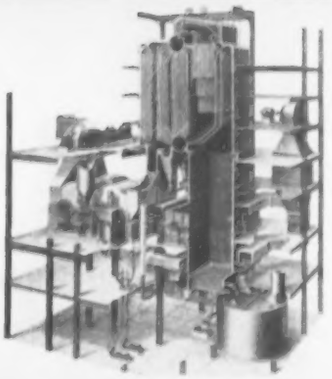
MINNEAPOLIS
Honeywell
BROWN INSTRUMENTS
First in Controls



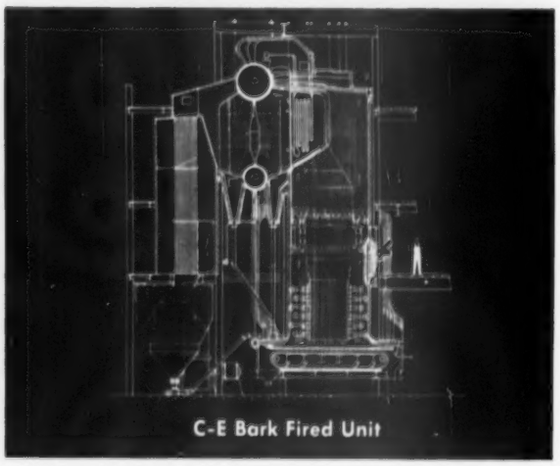
C-E Package Boiler



C-E Vertical Unit Boiler Type VU-50



C-E Recovery Unit



C-E Bark Fired Unit

Got a Steam or Fuel Burning Problem?... *See C-E!*

Package boiler, power boiler or chemical recovery unit—if your problem concerns how best to burn fuel to generate steam efficiently, reliably and economically—See C-E.

Why? Because C-E has a complete line of steam generating and fuel burning equipment both standardized and custom-made to fit all the specialized requirements of the pulp and paper industry. No matter whether you burn Black Liquor, Waste Sulfite Liquor, Bark, Hogged Wood, Coal, Oil or Gas, C-E offers you equipment *designed specifically* for each job.

The acceptance accorded C-E equipment by the Pulp and Paper Industry is evidenced by the following facts.

1. Since 1945, leading pulp and paper mills have purchased C-E power boilers having an aggregate capacity of more than 11,000,000 lb of steam per hour.

2. Since 1945, thirteen leading mills have reordered C-E power boilers. In fact, one internationally known paper company placed *seven separate orders*.

3. Since 1945, more than 80 C-E Chemical Recovery Units have been purchased by pulp mills throughout the world. These include units ranging in capacity from less than 100 tons to the world's largest, having a capacity in excess of 500 tons.

4. Since 1945, eighteen leading pulp mills have *reordered* C-E Recovery Units; of this number four mills have reordered twice and one mill three times.

5. The C-E Bark Burning System, the recent C-E development that has revolutionized bark and hogged wood burning, has already been installed in a score of pulp mills at home and abroad. Performance records show greatly increased efficiency and substantial savings over old fashioned bark burning methods.

These are but five indications of the widespread acceptance of C-E equipment in the pulp and paper industry. They are five good reasons why, before you buy, you should See C-E.

B-850

COMBUSTION ENGINEERING

Combustion Engineering Building

200 Madison Avenue, New York 16, N. Y.

BOILERS, FUEL BURNING & RELATED EQUIPMENT; PULVERIZERS, AIR SEPARATORS & FLASH DRYING SYSTEMS; PRESSURE VESSELS; AUTOMATIC WATER HEATERS; SOIL PIPE

COLOR *sells tissue faster*

Add distinction to your tissue products—with color. Catch the shopper's eye with a range of colors that will fit her color schemes. Then watch your tissues move off the shelves. Don't leave your napkins, facial or toilet tissues behind in mounting sales volume. Added color brings added usefulness for the consumer and added sales for you.

Our technical staff will be glad to help you find the right colors—and the most economical colors for all of your tissue products. For complete information, write E. I. du Pont de Nemours & Co. (Inc.), Dyes and Chemicals Division, Wilmington 98, Delaware.

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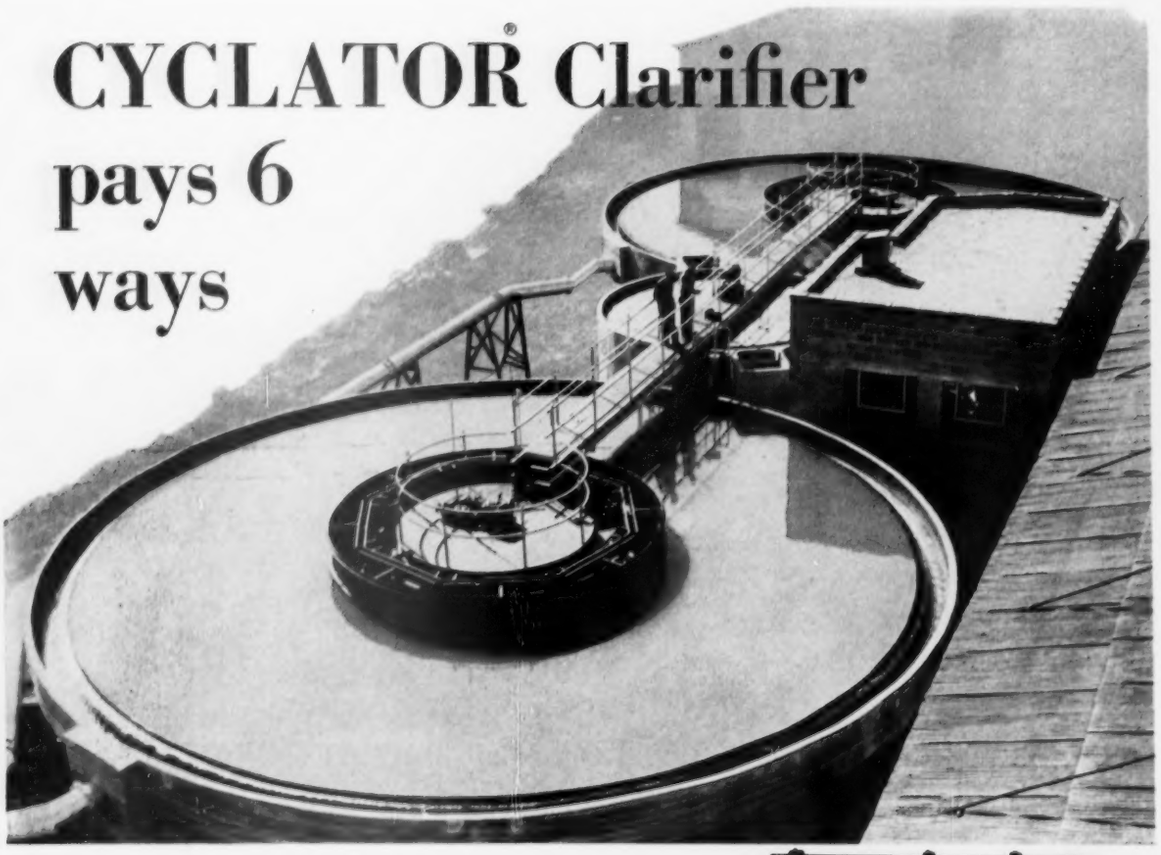
BETTER THINGS FOR BETTER LIVING THROUGH CHEMISTRY

Color sells more...for your customers and you

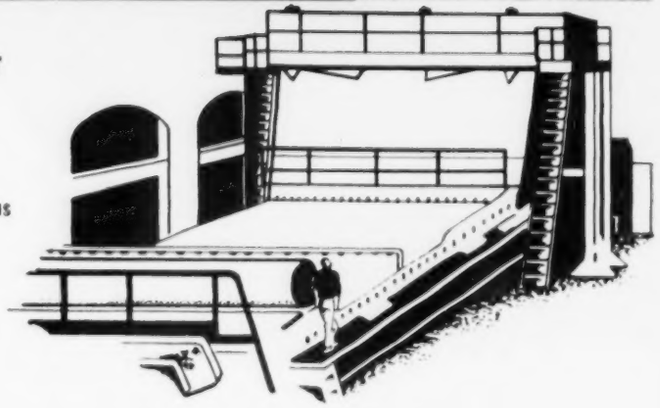
Du Pont Dyes

CYCLATOR® Clarifier pays 6 ways



...in clarification of white water and paper plant effluents.

1. Earns dividends in value of water returned to process and/or in fibre recovery.
2. Combines chemical and mechanical methods **plus** solids recirculation in a single unit.
3. Eliminates separate mixing, coagulating and setting basins.
4. Saves valuable space.
5. Handles shock loads efficiently.
6. Permits quick startups after shutdowns.



These and numerous other important advantages will help you solve your pollution problems efficiently—perhaps even at a profit! Just compare the CYCLATOR Clarifier with ordinary equipment. Its superiority will be immediately obvious. The famous INFILCO line of water and waste treating equipment features other important units for paper mill operators. Included are the ACCELATOR® Clarifier for water treating, the SEDIFLO-TOR (trade-mark) Saveall for fibre and water recovery, anthracite filters, for polishing green liquor and white liquor, and other equipment of finest design and manufacture.

Our engineers are at your service, together with the knowledge gained from many years of specialized experience in pulp and paper fields. Whether you are modernizing an old plant or planning a new one, write for complete information today.

INFILCO

The one company offering engineered equipment for all types of water and waste processing—coagulation, precipitation, sedimentation, flotation, filtration, ion exchange and biological treatment.

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Offices in principal cities in North America

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LINKED IN PROGRESS AND QUALITY

Whether it be BOLTON Hydro-truss Shell Fillings (*illustrated*), complete EMERSON Jordans, or CLAFLIN Refiners, their performance depends on the combination of engineering skill and precision craftsmanship built into them. Linked together at Lawrence, Massachusetts, are the combined talents and experience of JOHN W. BOLTON & SONS, INC. and THE EMERSON MANUFACTURING DIVISION in this, our 50th year of service to the paper industry.

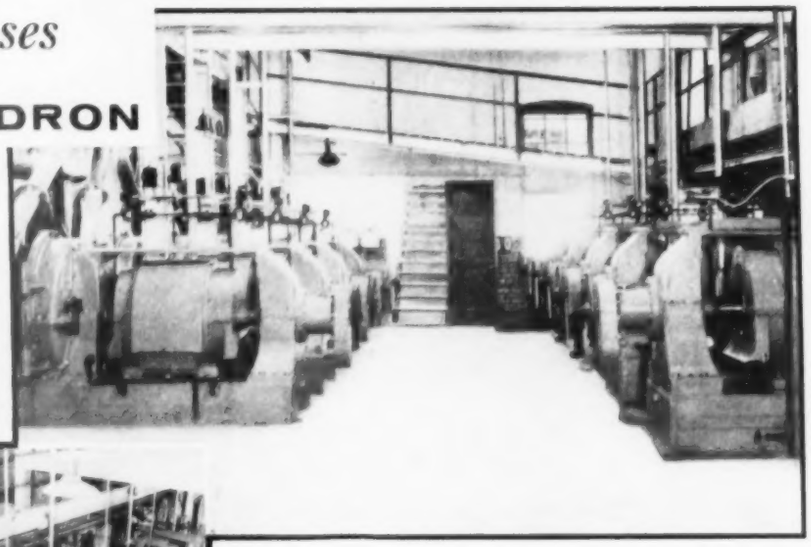
for economical **SEMI-CHEMICAL** *pulping*

GAYLORD CONTAINER CORPORATION

repeatedly chooses

SPROUT-WALDRON

36-2 Refiners



Nine Sprout-Waldron 36-2 Refiners at Gaylord Container Corporation, Bogalusa, La., refining pulp for 9-point corrugating board. Two-stage refining is used with five Sprouts in the primary stage (two on kraft knots and rejects; three on neutral sulphite semi-chemical chips). Four refiners in the secondary stage finish the pulp.

Sprout-Waldron Refiners have been producing pulp in this mill since 1931. Repeat orders are the best evidence of customer satisfaction.

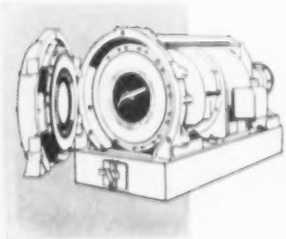
The SPROUT-WALDRON refiner is the leading producer of semi-chemical pulp

Single rotating disc design with peripheral control ring plus rugged construction for . . .

- **High Pulp Quality**
- **Flexibility of Operation**
- **High Capacity**
- **Low Maintenance**

For more information on semi-chemical pulping or any other pulping application, send for our file of technical and practical data. Write to Sprout, Waldron & Co., Inc., 32 Logan St., Muncy, Pa.

S W



for your pulping problem—

SPROUT-WALDRON

PULP REFINERS

PP/399

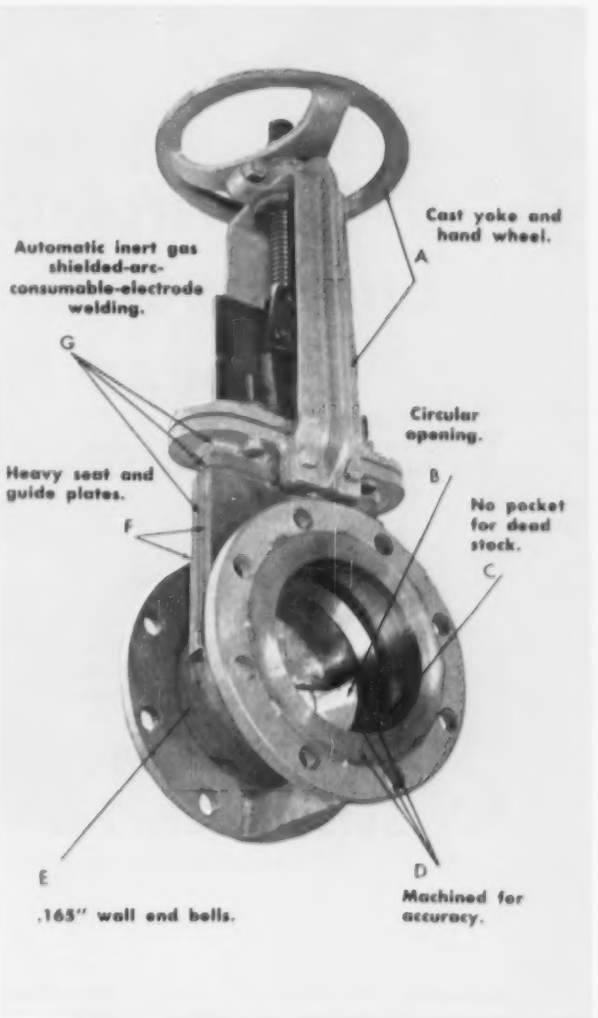
Strefco CORROSION RESISTING PRODUCTS FOR THE PROCESS INDUSTRIES

NEW ALLOY STOCK VALVE

GIVES REQUIRED STRENGTH AT LESS COST

for the piping systems of the pulp and paper industry

Strefco NO. 100 ALLOY KNIFE GATE BONNETLESS STOCK VALVE



The need for a stock valve embodying rigidity of construction, sufficient, but not excessive, strength, economy of weight, cleanliness and ease of maintenance prompted Strefco engineers to design an entirely new bonnetless stock valve having the following features.

1. Combines quality workmanship with properly proportioned alloy parts in a rugged valve.

2. Combines minimum weight (compatible with strength) and accuracy of dimensions to assure ease of installation.

3. Provides good operation through a positive shear gate, full flow area and a minimum of possibilities for stock build-up.

4. Has inherent strength from quality and design which prevents failure under usually encountered operating conditions.

5. Designed with a circular opening to permit easy reconditioning of the seat plate when made necessary by wire-drawing or foreign objects.

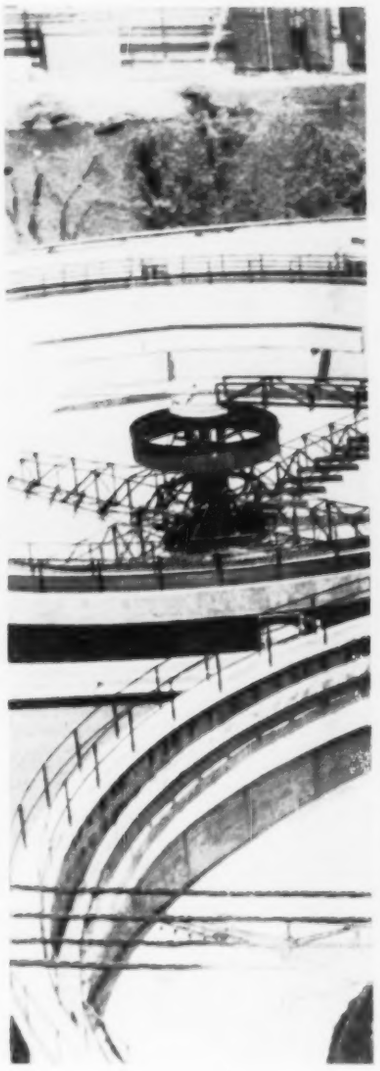
6. Compares favorably in cost with the cheapest of fabricated alloy valves and is less expensive than those of equal strength.

WRITE TODAY FOR FURTHER INFORMATION AND SPECIFICATIONS.

Strefco is FIRST

IN CORROSION RESISTANT PRODUCTS FOR THE PULP, PAPER AND CHEMICAL INDUSTRY.

Strefco STREED FABRICATING COMPANY P. O. BOX 451 ATTALLA, ALABAMA CORROSION RESISTING PRODUCTS FOR THE PROCESS INDUSTRIES



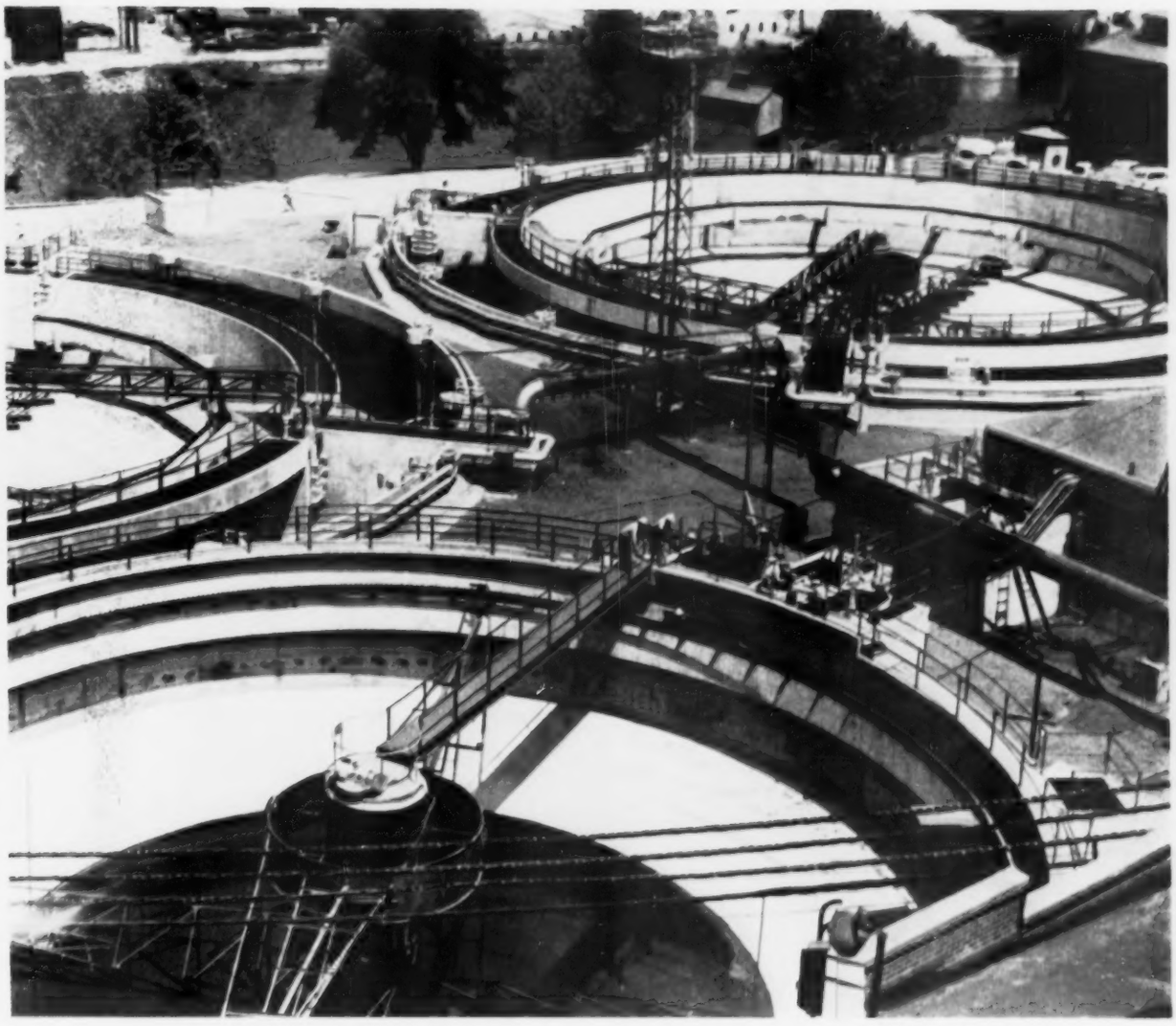
West Virginia Pulp and Paper Company Pioneers New Waste Treatment Process

Dorr-Oliver Equipped Plant Sets Pattern For Industry

Covington, Va. Industrial waste treatment has taken a major step forward with the start-up of this new plant at West Virginia Pulp and Paper Company's Covington, Va., mill. A "first" for the alkaline pulping industry, it points the way toward a solution of these tough-to-handle wastes. Two years of pilot plant work went into the final design and the Covington mill's River Research Group worked closely with the National Council for Stream Improvement throughout all phases of the project. The firm of Weston, Eckenfelder and Hood was also called in to make an intensive round-the-clock analysis of pilot plant results.

The flowsheet as developed is unique. Basically it employs the activated sludge process, one of the standard methods for treating municipal sewage. A departure from standard practice is the addition of certain nutrients essential to the life of the bacteria which carry out the treatment process. Another is split treatment providing primary sedimentation for the portion of mill wastes containing solids and then parallel aeration and final sedimentation for the entire flow. A third is the use of complete instrumentation with one control panel governing the process and recording results.

Average treatment plant design is 16 MGD with a maximum capacity of 25 MGD. Major



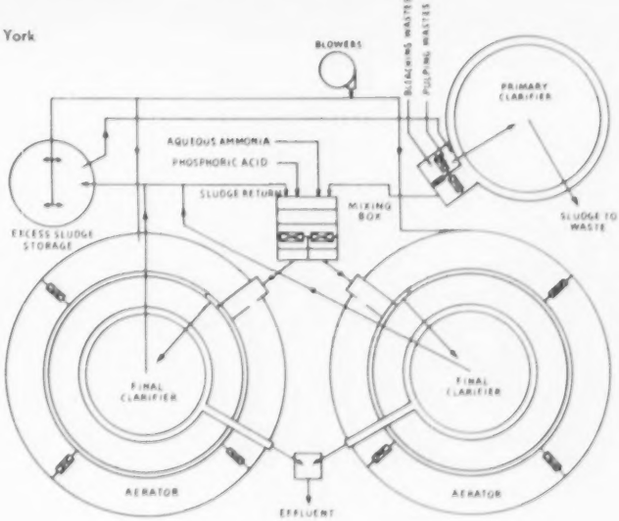
General view of the plant during final stages of construction. Dorr Primary Thickener is in foreground with Currie Claraetors in rear.

Consulting Engineers: GIBBS & HILL, INC., New York, New York

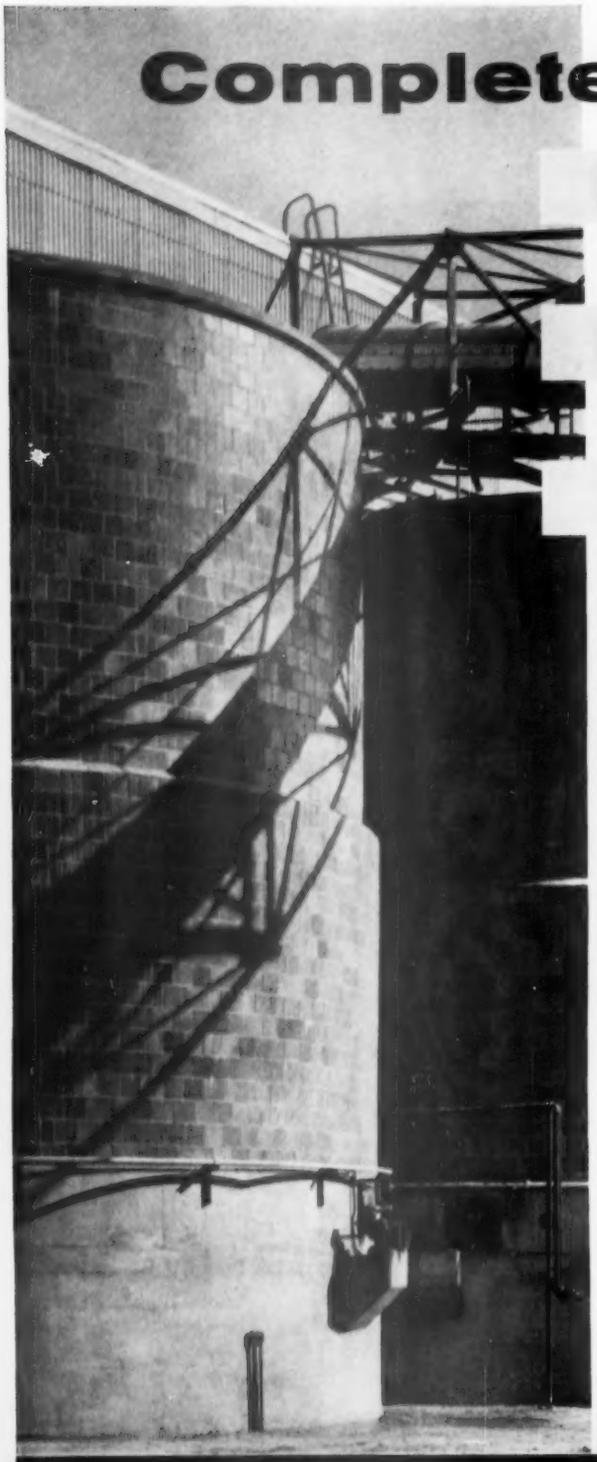
equipment units include a Dorr Primary Thickener and two Currie Claraetors.* These latter units employ Dorr Final Clarifiers surrounded by annular aeration channels. In this way two distinct phases are carried out in a single unit. When the plant reaches full operation an estimated BOD reduction of 80-90% will be made in the mill effluent being discharged to the Jackson River.

Dorr-Oliver Incorporated, Stamford, Conn.

*Trademark, Reg. U. S. Pat. Off.



Complete Service



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by our own engineering staff

INSTALLATION
by our own construction crews

MAINTENANCE
by our own service specialists

of Corrosion-Resistant

LININGS and TILE TANKS

Designed and installed to meet the exact chemical and physical requirements of each installation, Stebbins linings and tile tanks are industry-famous for their efficiency and economy.

Wherever you are—whatever your corrosion-resistance problem may be—it will pay you to take advantage of Stebbins' unequalled experience and facilities.

Write for Bulletin A-153

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Specialists in
Design
Installation
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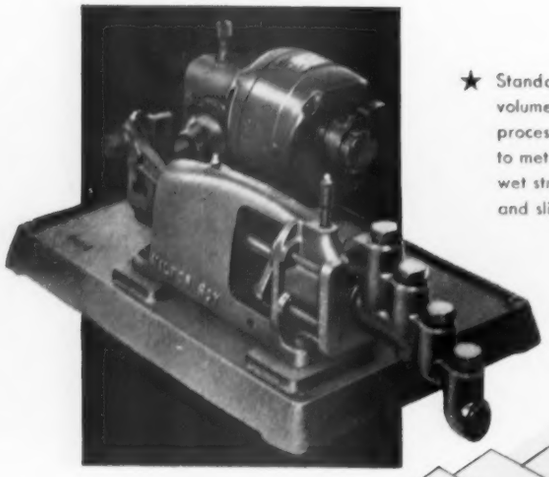

★ Standard motor-driven controlled volume pump on glue feed. In other process applications, this pump is used to meter such chemicals as dyes, sizes, wet strength resins, defoamers, and slimicides.

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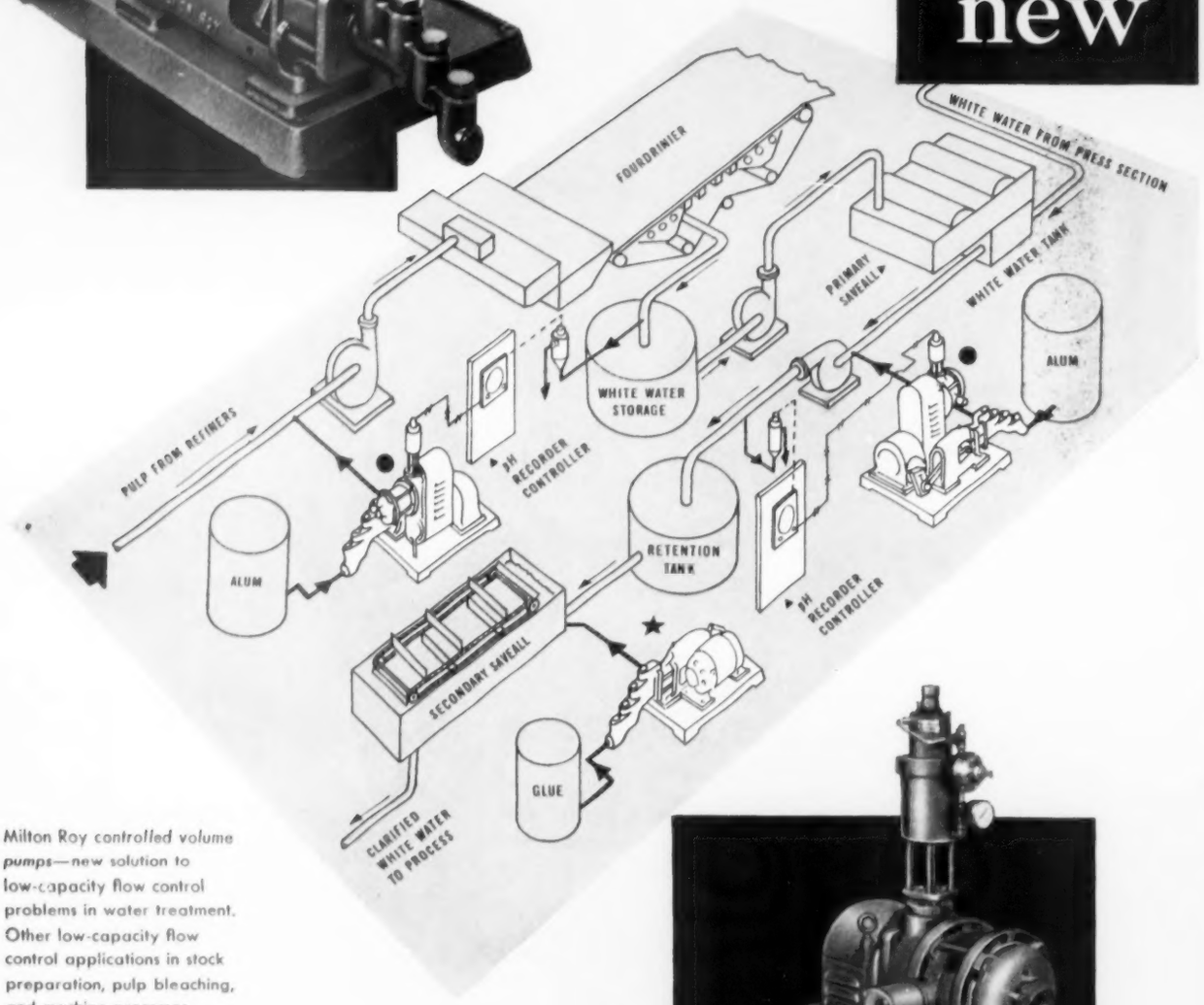

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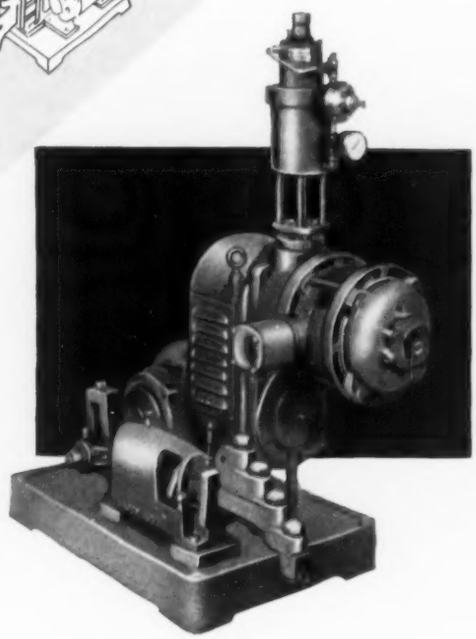

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New Top Officers and Trustees for the Institute of Paper Chemistry

Left to right: JOHN G. STRANGE, 44 years old Sept. 17, is new President of the Institute of Paper Chemistry. Member of a famed Wisconsin paper family, he served the Institute 23 years, since graduating from Lawrence College. DR. HARRY F. LEWIS, now 64, Dean since 1933, is new Vice President in charge of Academic Affairs. WESTBROOK STEELE, now 66, President or top staff officer of the Institute since it was founded in 1929, was elected President Emeritus. He continues as Advisor. New Institute Trustees—ALEXANDER CALDER JR., Exec. Vice Pres. and Gen. Mgr., Union Bag & Paper Corp.; THOMAS B. McCABE, President, Scott Paper Co., and HOWARD MORGAN, Vice Pres. and Pulp Div. Mgr., Weyerhaeuser Timber Co. PULP & PAPER carried the only published report of the decision of the 16 Institute trustees to augment their membership in its July, 1955, issue. ERNST MAHLER, a Founding Senior Trustee, and Kimberly-Clark Director, continues as Chairman of enlarged board.

New Leaders for Growing Institute

Just three days before his 44th birthday, Strange succeeds Steele—New academic plans develop under Lewis

● For the first time in its 26-year history, the Institute of Paper Chemistry at Appleton, Wis., has a new staff executive leadership and a board of trustees which has been augmented in size for the first time since its founding.

A new era thus begins for the Institute, owned by 128 companies which make 85% of all the pulp and paper produced in the U.S.A.

John G. Strange is the new president of the fast-expanding research center for these companies and its pulp and paper graduate school, high above the Fox River. This honor came to him while he was still 43—three days before birthday, Sept. 17. Ever since he graduated with honors from Lawrence College in '32, he has remained on the Lawrence campus to make his career with the Institute. He has been vice president and treasurer since 1950.

GROWTH UNDER STEELE—Westbrooke Steele, at 66, became president emeritus and advisor and consul' nt. He came to Lawrence in 1928 to reorganize its program. A year later he helped Ernst Mahler, trustees' chairman, and a few others, to found the Institute. He has served as top staff executive officer all those years since 1929. Under his leadership, the Institute grew from a property of only 19 companies, to one of 128; its operating budget from $40,000 to more than $1,500,000; its staff from three persons to 251. It began with leased space and $50 equipment; now its buildings and equipment exceed $3,000,000 investment. It completed in September 24 new dormitory apartments for married students.

Knowing that his September retirement was coming, Mr. Steele made a report of his custodianship before 326 registered industry leaders at the Executives Conference last May, which had emotional undertones that were not missed that afternoon by his associates. He and his wife leave Appleton to reside permanently in their Brattleboro, Vt. home.

LEWIS NOW VICE PRESIDENT—Dr. Harry F. Lewis, dean of the Institute since 1933 and staff member since 1930, has taken over the post of vice president in charge of academic affairs. He came to the Institute as professor of organic chemistry, after teaching in other American colleges and engaging in government and industry research. The conference last May accorded him an ovation on his 64th birthday—May 27. The day after his election as v.p., he was awarded in Appleton the Mitscherlich Medal by representatives of West Germany's Vereinzellcheming, industry technical association. PULP & PAPER had previously reported his winning of this medal, comparable in that country to TAPPI's Gold Medal.

Dr. Lewis has been a spearhead of annual campaigns to bring top quality students to the Institute, traveling far and wide in the country every year on this mission.

NEW ASSISTANT FOR MEMBERS—A new administrative appointment at the Institute is Zinn Garrett as assistant to the president, concerned with prospective members, membership matters and allied industries. After World War II service as an infantry officer, he remained abroad as a military government and U. S. state department officer. He was executive officer for the military government of Wurttemberg-Baden 1948-49 and later, with the state department, supervising various offices in West Germany. His last post was at Bonn, conducting U. S. military relations with the West German government.

NEW PLANS—New academic plans for the Institute under Dr. Lewis are

expected to include refresher courses for mill men. One of the final recommendations of Mr. Steele as president was for another new functional building.

Mr. Strange has served as a Lawrence College trustee since 1940, when he was 28. He has been a director of the National Bank of Appleton since he was 42, and a director of Cutler-Hammer Inc., Milwaukee, the past two years. Twice he has chairmanned the Appleton board of education.

Mr. Steele came to the Institute with a record of 20 years in reorganizing some 70 schools and colleges. He was general manager of National System Co., which did this work. He had been vice president of Western Theological Seminary, vice president of Centenary College, consultant to the College of Puget Sound, Tacoma, Wash., and assistant to the president of Bradley Polytechnic. He assisted on programs for the Pulp & Paper Research Institute of Canada and the Institute of Textile Technology. In World War I he served in the army air force.

HOW BOARD IS ENLARGED—Plans of the Institute to increase its board membership and broaden its geographical representation were exclusively reported in PULP & PAPER in July. At the same Chicago meeting where the new officers were elected, a task committee headed by W. Irving Osborne, president of Cornell Paperboard Products Co., made its final report on the program for increasing trustees.

Three additional members were elected: Pres. T. B. McCabe of Scott Paper, Exec. Vice. Pres. and Gen. Mgr. Alexander Calder Jr. of Union Bag & Paper, and Vice Pres. and Pulp Division Mgr. Howard Morgan of Weyerhaeuser Timber Co. As reported in the July issue of PULP & PAPER, the enlarged board was to include 6 senior members serving 6-year terms and eligible to succeed themselves and 5 term trustees, serving 5-year terms and only eligible to reelection after being off the board at least a year. There was also a plan to elect an new alumni trustee, serving 3 years.

These trustees are continuing to serve: Mr. Mahler, former Kimberly-Clark executive, chairman, and Mr. Osborne, vice chairman; Dan Brown, Neenah, Paper; George E. Dyke, Robt. Gair Co.; Clark Everest, Marathon; Sydney Ferguson, Mead Corp.; Stuart E. Kay, International Paper; Al B. Layton, Crown Zellerbach; Don Leslie, Hammermill Paper; David L. Luke, Jr., West Va. P&P; George Olmsted, Jr., S. D. Warren Co.; Herbert T. Randall, Champion Paper; and John L. Riegel, Riegel Paper Corp. Ex-officio members are President Strange, President D. M. Knight of Lawrence College, and Karl E. Stansbury, Thilmany Paper, as nominee of Lawrence.

C. B. Sitterson was re-elected secretary of the Institute and Doris Pickert, assistant secretary.

200 World Experts Air Bleaching Problems

Why is there color reversion? Why must pulps be bleached multiple stages? Research expands abroad.

● Why is there color reversion of bleached pulps? Why must pulp be bleached in several stages for high brightness, instead of just one or two?

These were elusive questions for 200 pulp and paper experts from Sweden, Finland, Norway, West Germany, Australia, New Zealand, Tasmania—as well as U.S.A. and Canada—who gathered in Appleton, Wis., in September for an international symposium on theoretical aspects of bleaching.

The Institute of Paper Chemistry was host and TAPPI committees sponsored the meeting. J. R. Salveson, director of Central Research, Marathon Corp., chairmanned the three-day event.

Dr. Harry F. Lewis, new vice president of the Institute, who spearheads the American industry's fundamental research, received these five proposals for future symposium subjects:

1. Delignification of pulping. 2. Nature of lignin-derived substances in kraft bleach liquor. 3. Study of the physical issue of mechanism in treatment of pulp. 4. Differences between sulfite and sulfate pulps as to structure and fibers. 5. Relationship between physical and chemical properties of pulp and strength of paper.

Dr. Lewis' fundamental research committee and Dr. W. Howard Rapson's pulp purification committee, both of TAPPI, were responsible for the program. Dr. Rapson, now at the University of Toronto, developed the first continuous process for manufacture of chlorine dioxide on this continent at Canadian International Paper Co.'s Temiskaming, Que., mill, later installed at Hawkesbury, Ont., and Natchez, Miss. (I.P.'s Southern Kraft Div.), heading a movement that has put ClO_2 bleaching into some 40 North American mills.

WHY 6 OR 7 STAGES?—In free-for-all discussions at Appleton, scientists admitted the need for bleaching for 5, 6 or 7 stages was unclear, and they knew little about the real reasons why alternate alkaline and acid bleach steps with hypochlorite and chlorine dioxide must be used. But one-stage bleaching for best results, they agreed, is not practical at the present time.

Ways to slow down or avert color reversion of bleached pulps puzzled the scientists. Many possible causes were mentioned: Reductone formation from carbohydrates, furfural, residual lignin, metal resinates, poor washing, pH and other causes, residual resins, metallic catalysts, diffusion of fibers, carbon group formation, impurities in water, unknown bodies, moisture content of paper, microbes and tower reversion.

The day before these discussions, E. B. Marum of Solvay Process Div., Allied Chemical & Dye, described tests indicating overbleaching with hypochlorite is connected with color reversion. He said kraft pulps treated alternately with chlorine dioxide and caustic extraction improved in brightness during storage and could be brightened instantly by reducing agents.

NEW WAY TO PHOTOGRAPH FIBERS—Prof. Georg Jayme, who came from Darmstadt, Germany, for a tour coast to coast of pulp and paper centers, discussed improved methods of photographing pulp fibers. The sharpness of electro-microscopic photographs of pulped and bleached fibers was increased by using a shadowed replica of the surface to be photographed. By this method, primary and secondary walls were photographed, as well as occurrence of lignin around bordered pits. A greater clarity than ever before was achieved.

Chemists from several countries

J. R. SALVESON (left), Director of Central Research, Marathon Corp., Rothschild, Wis., chairmanned the Bleaching Fundamental Research Symposium which drew some 200 scientists from nine nations to Appleton, Wis.
DR. W. HOWARD RAPSON (right), who pioneered chlorine dioxide manufacturing for mills on this continent at Canadian International Paper plants, and Dr. Lewis of the Institute were heads of committees arranging the program.

gave papers. The validity of new accelerated tests with heat to measure color retention was questioned. One chemist suggested a simple test of moisture conditions and aging effects on paper and pulp could become a standardized brightness reversion test.

Contamination from mill machinery, piping, containers, etc., was discussed. New mills being built will minimize such contamination, it was said. Manganese, iron and copper of only 5 or 10 parts in a million can affect pulp bleaching and brightness.

What are causes of seasonal variation in bleaching and pulping, and of changes in viscosity by chlorination? These were among many questions, few of which were answered.

Among papers, D. H. Grangaard of Kimberly-Clark and C. Wetlesen of Norway talked on chlorination studies, Hansjoachim Leugering of Germany's Waldhof mills discussed multi-stage bleaching. Ray Hatch, research v.p. of Hudson P & P and a pioneer of bleaching in U.S.A., came to Appleton to preside at one session.

HEAR ABOUT OVERSEAS INSTITUTES–A Lake States TAPPI meeting benefited by the presence of so many distinguished scientists and heard four overseas experts describe their research institutions. These were Dr. Jayme from Darmstadt; Dr. Charley Gustafson from Central Laboratories of Finland; Dr. Frithjof Loschbrandt of the Pulp & Paper Research Institute at Skoyen, Norway, and Dr. H. W. Giertz, who described the Forest Products Research Laboratory in Stockholm.

Finland's is supported entirely by 30 companies owning 72 mills and does private research for individual companies. States sponsor some students. Much field work is done in mills.

A large new building, with garage underground, large library, labs and shops, will be a new home for Norway's Institute.

WHAT GERMANY HAS–The Darmstadt Institute of Cellulose Chemistry was founded in 1908 and is "strictly educational" and not engaged in industry research, said Dr. Jayme. Industry men study there, and enrollment is 55, all working toward master's or doctor's degrees. (The Appleton Institute had 75 last year.) He showed views of a paper chromatography laboratory, a multiple cooker which can prepare 20 pulping samples in 2 hours, a rayon spinning machine, a wood collection, etc.

Sweden's Forest Products Laboratory has a staff of 200, about as many as 5 Swedish private research centers combined. It emphasizes fundamental research and is government-supported. It has perhaps the largest experimental paper machine in the world, which can handle 1,500 ft. on the wet end, and 1,000 ft. on the dry end.

Dr. Giertz, who discussed the Stockholm institute, has now joined the Technical University at Trondheim, Norway, which he said is expanding its pulp and paper research facilities.

PAUL BALDWIN—Now is Scott's V.P. for Engineering-Research-Development. Still heads Coast Division.

Scott Adds to Paul Baldwin's Duties

• Paul C. Baldwin, vice president in charge of Scott Paper Co.'s rapidly expanding West Coast manufacturing operations, has been given the additional responsibility of directing all of the company's staff engineering, research and development activities. He continues to reside in Everett, Wash., where Scott has one of its biggest mills.

Mr. Baldwin succeeds J. Larcom Ober, who has retired as vice president and director. Mr. Baldwin takes on added duties, as Scott undertakes multimillion dollar expansion programs in Alabama, Michigan and Maine and Mexico. It has added over 25 paper machines to its holdings as it has merged and grown to be one of the American industry's "Big Five."

A graduate of Syracuse University, Mr. Baldwin earned his master's and doctor's degrees at Institute of Paper Chemistry. Joining Scott's technical division in 1940, he became manager of the main plant at Chester, Pa. in 1947. Then still on the shady side of 30, he was one of the youngest managers of one of the biggest mills in the industry. In 1951, he was elected assistant vice president and moved to Everett to co-ordinate Scott's three West Coast mills. His election as vice president came in 1953.

Water and Wood Adequate For New WTCo. Mill

Supt. N. J. Salmon of the Aberdeen (Wash.) water department told PULP & PAPER that there is ample water supply for Weyerhaeuser's new 400-ton magnesia base sulfite market pulp mill on Grays Harbor. The city has transmission facilities that have been installed for many years which will deliver approximately 90 million gallons daily. Rayonier Inc., with its mill at Hoquiam, nearby, has already arranged for an additional 10 mgd to raise its daily total available to 40 mgd.

Source is the Wynoochee River northeast of Grays Harbor. The only new construction needed to deliver 40 mgd to a new mill is a more adequate intake facility upstream and a pipeline to the mill proper, a distance of three miles.

According to Mr. Salmon, Weyerhaeuser obtained an option to enter into a long-term contract for 40 mgd.

PLENTY OF WOOD FOR MILL–The nation's original certified Tree Farm, the Clemons Farm, is one of key areas which will supply logs to the new Grays Harbor mill. The Clemons tract contains 138,000 acres. The Willapa Tree Farm also has 138,000 acres within its boundaries to serve this mill. WTCo also owns 59,000 acres in the cooperative South Olympic Tree Farm, 45,000 of which were traded to Simpson Logging Co. for a similar area lying north of Clemons and still not designated by a name. WTCo also has acreage in the land previously certified as the Schafer Bros. Tree Farm.

HOFFMAN IS BUILDER–L. H. Hoffman, Portland, Ore., contractor, has been selected to construct Weyerhaeuser's new mill.

Now is a Division

St. Helens Pulp & Paper Co., acquired by Crown Z by stock purchase in 1953, has been merged into the parent organization and henceforth will be known as St. Helens Division of Crown Zellerbach Corp.

Pulp-Paper Expansion is Worldwide

North American mill projects pass $400,000,000 mark—how newsprint companies kept price down, as wages rise.

● Actual current pulp and paper expansion now under way in North America has passed the $400,000,000 mark. Paper shortages are keeping this expansion going at a high clip. Reports of PULP & PAPER editors in all corners of the continent total up to this huge investment figure.

From the United Kingdom, now experiencing a boom which travelers declare is far greater than in this country, comes word that its pulp and paper industry also is entering into a period of great expansion.

PULP & PAPER'S correspondent in London, Edwin F. J. Dean, an experienced observer of the industry overseas, advises that planned pulp and paper expansion in that country involves an investment of about 50,000,000 pounds sterling (equivalent to some $110,000,000). This is mostly in paper and should greatly stimulate demand for North American as well as Scandinavian pulps, now breaking all records in shipments from this side of the ocean.

In New York harbor just the other day, a ship finished unloading a cargo of Scandinavian pulp and immediately began loading pulp from the Pacific Coast for shipment to Europe. It happened that special grades and qualities were involved in both cases.

DANGER OF OVER-EXPANSION?—Not yet, say two American paper company presidents who got their pencils out, and for benefit of PULP & PAPER readers, figured this way:

Population will increase at least 2,500,000 every year in the U.S.A. Per capita consumption is around 400 lbs. per person. That means a 500,000 tons average increase in paper production per year will be needed, just to take care of population growth—not counting any increases in paper uses. Assuming that papermakers and paperboard manufacturers continue to demand 60% virgin woodpulps, that means at least three new 300-tons-per-day mills must be constructed every year.

RECORD YEAR FOR EXPORTS—In addition to this, there is the added demand for woodpulp for rayon, acetate, cellophane, plastics, etc., and an export demand for U.S.A.-made woodpulp alone which will approach 600,000 tons this year. It totaled 442,000 tons last year. Only one previous year ever exceeded that mark—1940, when Sweden was blockaded, Norway overrun by Nazis, and U.S. mills shipped 481,000 tons to allies.

Total U.S.A. pulp production is now running about 10% above the 1954 all-time record.

Woodpulp production in Canada in the first seven months this year set a new record, 5,714,207 tons, up 227,000 tons from the 1954 period. Canadian exports in the seven months totaled 1,347,000 tons, up 122,000 tons.

(For more facts and figures about what's happening in pulp, see P & P's WORLD REVIEW NUMBER 1955, p. 80).

Spokesmen for the American Bankers Association, in annual convention recently in Chicago, pointed out that loans now have reached a record high level for all time, and warned against business and industry over-extending itself. But, at the same time, these ABA leaders said prosperity at the present level, or near it, was assured through the middle of 1956, and that 1956 might be just slightly below 1955 in sales. They said mild checking measures could handle inflationary trends if they threaten to get out of hand.

RAYONIER TO DOUBLE AT JESUP—Rayonier is doubling the size of its Jesup, Ga., operations. Two 100,000-tons-per-year mills side by side, but independent, can make two kinds of chemical cellulose. To see what the new mill will be like, read P&P's exclusive report on the first unit—Nov. 1954 issue.

Weyerhaeuser, already building a 400-ton market pulp mill at Cosmopolis, Wash., has applied to Oregon for permit for Tenmiles Lake water, which could supply a possible pulp mill in the Coos Bay, Ore., area.

A new $20,000,000 power dam on the Warrior River near Birmingham, Ala., has spurred speculation that a new paper mill may be built there, aside from the Marathon and Gulf States mills already under way in that state. Attorney for Warrior River Electric Cooperative said the dam might result in a paper mill being built at the site.

NEWSPRINT EXPANSION – TEN MACHINES–PRICES STEADY—For a tremendous unleashed newsprint expansion, ten big new machines are being built. Others, idle or being converted, will add to supply. A 290-in. newsprint machine, second in a year, was started by Great Northern. Hearst is going ahead with a $17,000,000 mill in Nova Scotia, 70,000 tons a year.

The American Newspaper Publishers Assn. was more than right when it said U.S. and Canadian capacities would be increased by 1,215,570 tons of newsprint by the end of 1958. North American production, 7% over last year, should total around 7,500,000 tons this year.

For each new machine installed, from 70,000 to 100,000 tons of news-

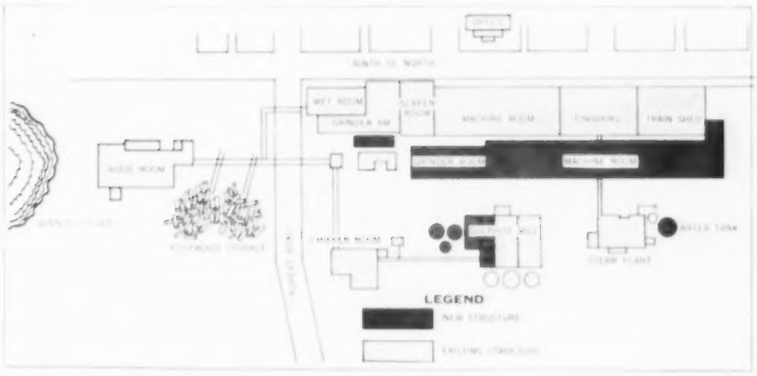
Americans to Use 3 Times as Much Paper

Per capita consumption of paper is expected to rise from 393 to 1,000 lbs. by 1980, predicts Clem W. Kohlman, advertising manager of American Cyanamid's Industrial Chemical Div.

He told the recent annual Chicago meeting of the National Paper Trade Association that new paper uses, especially in place of textiles, and automatic recording devices, supplanting man's memory, will call for help to triple present per capita consumption.

Raincoat manufacturers, bathing suit concessionaires at public beaches, vendors of scholastic caps and gowns, manufacturers of aprons, hats, skirts, dresses, underwear, socks and shoes are among the group in the market for paper that substitutes for textiles, said Mr. Kohlman. Mills are developing experimental papers for some of these purposes, he added.

A major factor in expanding markets for paper has been increasing use of wet-strength resins, Mr. Kohlman said. He declared that in two years, American Cyanamid Co., has tripled sales of its Melostrength Resin. It is used in dozens of paper items. Industrial wiping tissues, tarpaulins, drop cloths, hospital bed pads, face masks and frozen food wraps are large new paper uses in which wet-strength is important.



How Kenora, Ont., Mill Is Being Expanded

Third newsprint machine, eight grinders, another digester, etc., are going to be added at Ontario & Minnesota mill (see story). Howard Simons, Vancouver, B.C., is consulting engineer.

print annually will be added. The new ones are being built for International at Mobile (now they are also going to have a new kraft machine at Mobile, too), Southland at Lufkin, Tex.; St. Croix, Woodland, Me.; Crown Zellerbach, MacMillan & Bloedel and Powell River, all in British Columbia; Great Lakes at Ft. William, Ont., Coosa River in Alabama, Ontario & Minnesota Paper at Kenora, Ont., and Bowaters in Tennessee. New tonnages are being added for newsprint at International in Three Rivers, Canada's Consolidated, Abitibi, and Canada Paper, and small machines started up at Harrisville, N. Y. An extensive speed-up, rebuilding program is on.

Price of newsprint has been steady at $126 a ton for over three years despite the fact that mill wages went up every year. Total newsprint sales of North American mills now run near $750,000,000 a year. Wider machines, speed ups, technical advances increased production, kept the price down, but now a price rise is imminent.

MORE TISSUE PRODUCTION—The tissue field continues to boom. Scott Paper is moving into Mexico. It is arranging for purchase of Compania Industrial de San Cristobal, Mexico City, which makes pulp from cane bagasse, and also makes paper grades. The record of its varied wood species usage indicates the limit has not yet been reached on what kinds of fibers Scott can use.

A multi-million dollar program—and, quite obviously, a multi-machine-expansion program has been launched by Scott at its H&W division in Mobile, Ala. How many tissue machines will go in here? Pres. T. B. McCabe made it clear a big program is under way. He said a $21,000,000 investment is only the first phase. Scott just recently finished starting up four new tissue machines in just two years at Everett, Wash. (see P&P, Sept. issue, for a 6-page article on Scott's program to double its Detroit Division). Another big program is underway at Waterville, Me. Much converting equipment will be added at Mobile, probably making it a Scott production center comparable to Everett. Bleached pulp output will go up 120 tons per day.

Scott is increasing common shares from 10 to 40 million and authorized indebtedness from $50,000,000 to $150,000,000. Its trademarked paper sales are up 12% over last year. In 1956 Scott may spend $50,000,000 on machinery and $22,000,000 the last half of this year.

FOR INTERNATIONAL—TWO 282-IN. MACHINES—International Paper increased its outlay for Mobile expansion from $20,000,000 to $38,000,000 to provide for two new 282-in. Beloit Fourdrinier—one to make unbleached kraft paper, and one, newsprint—each 100,000 tons a year. Machines now making unbleached grades will be shifted to bleached kraft. The added 100,000 tons will require added pulp production and power at Mobile. Both new machines will start up in mid-1956.

I. P. has been granted a state ad valorem tax exemption for 10 years covering a $4,268,624 expansion of the paper mill at Springhill, Ark. Expansion is also under way in pulp at Camden, Ark.

Coosa River Newsprint, as forecast in these columns, has decided on a third Fourdrinier machine and doubling of the capacity of its Alabama operations by 1958. This includes pulp plant expansion. By 1957, production will be 152,000 tons, up 20,000.

CONSOLIDATED EXPANDS AGAIN—Consolidated Water Power & Paper Co. was one of the first paper companies to complete major expansion programs after the war, putting them well in the van in the industry's march to meet the mounting circulations of coated paper magazines. Now it is off on another major expansion. A new Beloit Fourdrinier machine will make some 60,000 tons a year of lightweight Enamel paper starting up in June 1957. This will boost its total Enamel paper production by 30%. It will be installed at the Biron (Wis.) Division with pulp pumped 4 miles from Wisconsin Rapids. It will be 185-in. wide, with speed up to 2,500 fpm. President Stanton W. Mead announces it would be a multi-million dollar investment.

Operation of Harrisville Paper Corp., Harrisville, N.Y., making newsprint and groundwood specialties, has resumed. It has two 114-in. Fourdriniers, also a groundwood mill. It provided jobs for 200.

WORK BEGINS IN "JAX"—At Jacksonville, St. Regis began construction for a new 1,200-ton-per-day kraft paperboard machine and other facilities which are aimed at a May 1957 startup target. By that time, the new Hinton, Alberta, 400-tons-per-day market pulp mill should also be producing. While St. Regis engineers and staff are high balling these two major projects, they are letting the new machine program for Tacoma,

More Mills for Oregon? Four Ask for Water

Menasha Wooden Ware Corp., 106-year old of Menasha, Wis., is making a preliminary survey of the wood chips situation in Oregon, as well as the water situation, but it is not ready yet to say if it will build a pulp and paper mill in that state.

This is the true status of the situation for this company in Oregon, PULP & PAPER was told at press time by its president, Mowry Smith. It owns Menasha Plywood Corp., North Bend, Ore.

There was some publicity to the effect it might build a mill there when it filed for water rights on Lake Tackenitch in Oregon. It filed on the same day, recently, when Long-Bell Lumber Co., a major logging-lumber company in the Far West, also asked for water rights at Gardner, Ore., where it may build a kraft mill.

Other companies who have asked state water rights, just in case they want to build pulp mills—Georgia-Pacific Plywood at Toledo, Ore., and Weyerhaeuser, in the Coos Bay, Ore., area.

Wash., sit "on ice"—probably not for very long, though.

At Jacksonville, J. E. Sirrine Co., of Greenville, S. C., is engineering for the pulp mill buildings and equipment; and Stevenson & Rubens, consulting engineers, Seattle, Wash., for the board machine buildings and equipment. Construction is being handled by Tidewater Auchter Construction Co. Of course, overall direction is by two St. Regis vice presidents, William R. Adams, head of all manufacturing, and Chief Engineer Justin McCarthy.

Beloit Iron Works is building a machine with 276-in. Fourdrinier wire width, overall length of 650 ft. and speed up to 2,500 fpm. To meet power needs, a 30,000 kva turbogenerator is being added.

St. Regis has spent $4,500,000 modernizing the 60-year Kalamazoo mill by rebuilding or reconditioning four of its five machines. Now they make as much as the 11 machines in the mill did 30 years ago, when it was Bryant Paper Co., some 70,000 tons annually of printing papers. Faeber coater, Microjet coater and double coater are other equipment St. Regis added.

COAST FIRM TO BUILD IN MEXICO—An American wood products firm has gone into Mexico to build a varied forest products industry, including 100 tons a day of market neutral sulfite pulp, on the southern Mexico border, at Santa Margarita. Frost Schneider of Tacoma, Wash., is president. Herman Simpson, Seattle, is consulting engineer. More on this in our WORLD PULP NEWS (Spanish-English) section.

First newsprint has rolled off Tasman Pulp & Paper Co.'s new machine in Kawerau, New Zealand, backed up by vast state-owned pine forests. This was a $60,000,000 joint state and private industry project, with aid from the Export-Import Bank of the U.S.A.

Kimberly-Clark has bought two "Aurora" company mills in Mexico.

Almost every major nation in the world has new pulp-paper projects. Many of these are described in P&P's 1955 WORLD REVIEW NUMBER.

Rayonier broke ground for its new $1,000,000 Rayflo (silvichemical) plant at its subsidiary Alaska Pine Marnole Division in British Columbia. Using pulp and lumber residues, Rayflo is a new oil well drilling mud dispersant, replacing such former products as quebracho, and now in wide demand.

DIAMOND MATCH BUILDS IN CALIFORNIA—Diamond Match Co., which has long maintained a large pulp and paper division, with such

Over 60 Mergers in This Industry

● Mergers—in many cases making jobs more secure, diversifying products, broadening markets, as well as adding to and broadening resources—are continuing.

On the eve of the recent National Paper Trade Association meeting in Chicago, our contemporary, AMERICAN PAPER MERCHANT, came out with a "box score" which listed 46 mergers of pulp and paper companies and converters, or other associated firms, as well as a dozen mergers of paper wholesalers. The list was compiled by L. Q. Yowell, APM editor.

To bring it up-to-date, we have added seven other mergers or merger proposals to the list, which follows:

PURCHASING OR ACQUIRING CO.	CO. ACQUIRED
Alton Box Board Co.	Rosenthal Paper Co.
American Seal-Kap Corp.	United Can Co. & affiliates
Bonded Fibres, Inc.	Piedmont Paper Prod. Corp.
Brown and Bigelow	Herb-Shelly, Inc.
Robert Busse & Co.	Klean Kan Bag Co.
Robert Busse & Co.	B. H. Jordan Paper Co.
Central Fibre Products Co.	Mapes Consolidated Mfg. Co.
Champion Paper & Fibre Co.	Bond-Sanders Co.
Champion Paper & Fibre Co.	Mid-West Bottle Cap Co.
Chesapeake Industries	Stanley Greetings, Inc.
Container Corp. of America	Traver Corp. of Chicago
Container Corp. of America	Wayne Paper Box & Printing Corp.*
Continental Can Co.	American Paper Goods Co.
Continental Can Co.	Carl Leigh Associates
Cornell Paperboard Prod. Co.	National Carton Co.
Crown Zellerbach Canada, Ltd.	Bartram Paper Products, Ltd.
Crown Zellerbach Corp.	Gaylord Container Corp.*
Diamond Match Co.	General Package Corp.
Doeskin Products, Inc.	Sitrue, Inc.
Robert Gair Co.	Southern Advance Bag & Paper Co.
Robert Gair Co.	Great Southern Box Co.
Gardner Board & Carton Co.	Yoder Engraving Co.
Greenwood Packaging Supply Co.	N.B.C. Sales Co., Inc.
Hudson Pulp & Paper Corp.	Hammond Multiwall Bag Div.
W. C. Hamilton & Sons	Michigan Paper Co.
International Paper Co.	American Paper Exports, Inc.
Kimberly-Clark Corp.	International Cellucotton Products Co.
Krafco Corp.	Champion Container Corp. of Dallas
Lawson & Jones, Ltd.	Quality Paper Bags
Lawson & Jones, Ltd.	Quality Paper Products
Ludlow Manufacturing & Sales Co.	Angier Corp.
Marathon Corp.	Michigan Carton Co.*
The Mead Corp.	Chillicothe Paper Co.
Mullen Container Corp.	Phoenix Industries, Inc.
Olin Industries, Inc.	Mathieson Chemical Corp.
Olin Mathieson Chemical Corp.	Brown Paper Mill Co., Inc.
Orchard Paper Co.	Racquette River Paper Co.
Pabco Products Inc.	Fibreboard Products Inc.**
Packaging Corp. of America	Ferguson-Lander
Puget Sound Pulp & Timber Co.	Anglo-Canadian Timber Products, Ltd.
St. Regis Paper Co.	Superior Paper Products
St. Regis Paper Co.	Pollock Paper Corp.
St. Regis Paper Co.	Kline Mfg. Co.
St. Regis Paper Co.	General Container Co.
Scott Paper Co.	Detroit Sulphite Pulp & Paper Co.
Scott Paper Co.	Hollingsworth & Whitney Co.
Scott Paper Co.	Westminster Paper Co., Ltd.
Smith-Stewart Paper Products, Inc.	Mary Robbins Gift Wrapping Div., Robbins Publishing Co.
Sutherland Paper Co.	Fort Orange Paper Co.
Sutherland Paper Co.	Reish Products, Inc.
Thor Corp.	Allied Paper Mills
Universal Match Corp.	International Tag & Salesbook Co.
West Va. Pulp & Paper Co.	Hinde & Dauch Co.

WHOLESALERS MERGED

Dillard Paper Co.	Dixie Paper Products, Inc.
Fox Paper Co.	Spaugh Paper Co.
General Paper Products Co.	Hudson Paper Co.
Hubbs & Howe Co.	Hubbs Paper Wrapping Div.
Hubbs & Howe Co.	Buffalo K. Chemical Co.
Ideal Paper Co.	Fred H. French Paper Co.
Lathrop Vandewater Paper Co.	John Floyd Co.
J. E. Linde Paper Co.	Lathrop Vandewater Paper Co.
Paper Products Co. of Visalia	Chandler Janitor Supply Co.
Pierce Paper Co.	Raymer & Co.
Prime Paper Corp.	William Goodbody Envelope Co.
Smith-Scharff Paper Co.	Streibich Paper Co.

*Awaiting stockholder approval

**Actually, Pabco is acquiring 100% of stock, buying C-Z's 50%.

mills in New York state, has announced plans for an integrated forest products industry at Red Bluff, Calif. Wood fiber and other products will be made, said Pres. Robt. G. Fairburn. Another company also is planning a market pulp mill in this area.

The idle Fort Madison, Iowa, paperboard mill will start up. Crandon Enterprises Inc., bought it from Hinde & Dauch. Hinde & Dauch, now a West Virginia P&P subsidiary, is building another box plant for $2,500,000 at Eaton, O. It is expanding on a big scale in Canada, too.

Pushing ahead with its plans for a new kraft paper mill at Antioch, Calif., with pulp barged from expanded operations in British Columbia, Crown Zellerbach announces a new $2,000,000 multi-wall bag plant will tie in with the paper mill, using 10% of the output, making 54 million bags a year.

International Paper opened its 8th paper milk container plant at 6100 Olson Highway, Golden Valley, Minneapolis, with G. A. Husnik, resident mgr. Paper now carries 50% of the nation's milk. Ten years ago it packaged only 10%.

EQUIPMENT FOR KENORA AND DRYDEN—J. F. McKellar, v.p. and gen. mgr. of Ontario-Minnesota P&P, Minnesota & Ontario subsidiary, said the $17,000,000 newsprint expansion at Kenora is being speeded up. The third machine will increase mill output from 400 to 700 tons a day. Major additions will be: a new Beloit 276-in. machine, a Weldrum barker, eight Waterous Super-hydraulic grinders with 4-5,500 hp drives, a new 15,000-tons-a-year digester, a Foster Wheeler 150,000 pph steam boiler, new Cowan screens and deckers, added finishing and shipping facilities. Paul A. Laurence Co., Minneapolis, is carrying out construction. H. A. Simons Ltd., Vancouver, B.C., are consulting engineers.

Dryden Paper Co., Dryden, Ont., is pressing forward an $11,600,000 investment, and added a new product—bleached pulp for market. It makes unbleached kraft and groundwood now. Pulp output will be doubled to 142,000 tons a year. Four more digesters will be added in the next two years. Bleach plant, new woodroom and Dorr causticizing are now going on. In 1957, additional evaporators and boiler will be added. No. 1 machine is being rebuilt. E. Lorne Goodall is president and gen. mgr. E. G. Macdonald is chief engineer.

The pressure for more color, more eye-appeal, more advertising value in paper products is also in full swing. Scott Paper has introduced color for the first time to its toilet tissue line, retailing out of Atlanta, Charlotte, N.C., Buffalo, N.Y. and New England divisions. New dyes for new colors of press boards and other colored papers are planned for production by N.Y. & Penn Co. Inc.

Paper Cos. Missing A Boat? This Agency Man Says So

The nation's advertising agencies are an almost untapped potential for sale of paper, Jerome B. Gray of Gray & Rogers, Philadelphia, recently told the Paper Makers Advertising Association in Chicago.

He said rich rewards await mill representatives and merchants who call on agencies. Production departments and art directors of Philadelphia agencies, he said, are rarely visited by paper salesmen, although agencies have a key role in determining the amount and kind of paper consumed by clients. Agencies can do much to educate advertisers in the use of more printed advertising and more paper, he said.

PULP & PAPER Adds to Staff in South, Names New Editor, Resident of Atlanta

• Because of the continuing growth and expansion of the Southern pulp and paper industry, a new resident editor in the South for PULP & PAPER has been appointed. The selection of William Francis Diehl, Jr., of Atlanta, for this position is announced by Albert W. Wilson, editor.

He explained that William J. Krebs, veteran PULP & PAPER editor in the South, who has had 30 years' experience writing about the Southern forest industries, will continue as a representative in the New Orleans region.

Prior to joining PULP & PAPER, Mr. Diehl served six years on the Atlanta Constitution, more recently as a featured by-lined staff writer-photographer. He wrote feature stories on a wide range of subjects, finding his own material usually and taking pictures to illustrate his stories. His first assignment on the Constitution, one of the nation's greatest newspapers, was writing obituaries and he made them so interesting, he soon "lost" that assignment.

He owns his own home in Brookhaven suburb of Atlanta, where he lives with his wife, Virginia, year-old daughter, Cathy, both native daughters of Georgia, and German Shepherd "Rok." In the line of his work, he has met and interviewed many prominent and widely known Southern leaders in politics, business, industry, etc.

GRADUATE OF MISSOURI—Mr. Diehl is a 1949 graduate of the University of Missouri. He served on 35 missions in World War II with U.S. Army 15th Air Force, and was discharged with rank of staff sergeant. While in service, he was injured in one crash landing and once landed behind enemy lines, but escaped.

Born in New York City Dec. 4, 1924, he grew up in Haddonfield, N. J., and Clearfield, Pa., and he attended prep school in Saltsburg, Pa.

As preparation for his assignment as new Regional Editor in the South for PULP & PAPER, William F. Diehl Jr. of Atlanta made a tour of industry institutions and plants in the North which serve the Southern mills and have close relations with them. Here are two young PULP & PAPER staff men, who traveled together to the U.S. Forest Products Laboratory in Madison, Wis., where they made a complete tour of that development and research institution: Mr. DIEHL, at left, and KENNETH A. JOHNSON (right), P&P Business Representative in the Middle West, a native Wisconsonite and formerly with Nekoosa-Edwards Paper Co.

His father, William F. Diehl, is vice president of a precision electronics firm, Airplane & Marine Instruments Inc. Young Diehl worked as a shipping clerk there, later as reporter on the Clearfield Progress and news announcer in its radio station.

Parents of his Georgia-born wife live in Newnan, Ga., and she has a were married Dec. 19, 1953.

Carr-Harris Dies In Crash

D. D. Carr-Harris, sales manager of Sutherland Refiner Corp. of Trenton, N. J., and formerly chief engineer for Columbia Cellulose Co. at Prince Rupert, B. C., was killed in an air crash in Missouri. Some years ago he was with Anglo-Canadian Pulp & Paper Mills as control superintendent of the woods department.

BLEACHING PANEL—OTHER SPEAKERS ON FINAL PROGRAM (above)—Standing, l to r: M. L. BOINEST, JR., of Halifax Paper, new First Vice Chairman of Southeastern Supts.; WAYNE SMITH, Prod. Mgr., Crossett, who told of his company's 3,000,000 man-hrs. without a lost time accident, and S. KEPPLE PRATT, Asst. Mill Mgr., St. Regis, Jacksonville, who described new drainage control technique. The bleaching panel is seated (l to r): CECIL HAMILTON, North Carolina Pulp; R. E. L. WHELESS, Camp Mfg.; J. K. DYER, Bowaters Southern; GEO. SEYMOUR, Brunswick P&P; RAY BROWN, East Texas P&P; LEWIS WHITE, St. Regis Paper; ROLAND FORTIER, St. Marys Kraft.

NEW LEADERS IN SOUTH (at left)—ROBERT B. WHITE (left), Prod. Mgr., Sonoco Products, and JAMES C. HAIR (right), Paper Div. Mgr., Crossett, congratulate each other as they advanced to Chairmen of Southeastern and Southern Supts. Divisions. In 1924-28 they were classmates at Clemson College. Both are natives of South Carolina.

South's Supts. — A Significant Meeting

Important new process devices and useful ideas are revealed at their sessions near Savannah

● An informative and useful program drew some 85 superintendents and other supervisory men and 130 supply and equipment men to the annual Joint Fall Meeting of the Southeastern and Southern Superintendents Divisions.

Actual registration was 296 including the wives. The three days at the 122-year-old General Oglethorpe resort hotel, downriver from Savannah, was climaxed by a banquet and dancing to a band called the Dixie Gamecocks.

This is the only Superintendents meeting held the entire year in the South, and though attendance runs smaller than some Northern meetings, per capita-production tonnage responsibility of the mill men runs comparatively high. A big expansion program now under way in Southern mills kept many busy men at home and attendance was off normal.

CLEMSON CLASSMATES HEAD DIVISIONS—Two Southern industry executives who were classmates (1928) at the South's Clemson College are the new chairmen—Paper Division Mgr. James C. Hair of Crossett Industries in Crossett, Ark., for the Southern Supts., and Production Mgr. Robert B. White, of Sonoco Products in Hartesville, S.C., for the Southeastern. Both native South Carolinians, Bob White stayed in his home town and worked all his career for Sonoco, starting in the beater room. Jim Hair has wandered far from his native Blackville, S.C., for 16 years with Procter & Gamble and Buckeye in California and Ohio before settling down with Crossett these past ten years. Now these old schoolmates will be brought together often in their association roles. They succeeded Charles McCarthy of Southern Paperboard and Rudy Barnes of Champion.

Officers of Southern Div. are William C. Hayes, National Container, Valdosta, first vice chairman; Franklin Jones, Container Corp. of America, Fernandina, second vice chairman; Nelson Michaud, Southern Advance Div. of Robert Gair, third vice chairman. Their counterparts in the Southeastern Div. are M. L. Boinest, Jr., Halifax Paper, first; J. D. Dailey, Riegel Carolina, second; and Ed Luczycki, Johns-Manville, Jarratt, Va., third.

HOWARD H. STREET, of Vulcanized Fibre Co., Wilmington, Del., National Pres. of Supts., made inspirational talk at Southern meeting. He quoted Marcus Aurelius—"A man's life is dyed the color of his imagination."

SURPRISES AND NEW FACTS IN PAPERS—Highlights of the business sessions:

How the Charleston, S.C., West Virginia P&P mill reorganized maintenance on new lines, providing greater efficiency.

How International Paper Co. research established wide variations in pulp and paper quality of different parts of a pine tree—indicating the rapidly increasing use of sawmill chips should make better pulp than much conventional pulpwood.

A dramatically demonstrative discussion of safety, which was full of surprising facts. Also how Crossett Mills established an outstanding safety record.

How Bowaters Southern has made the target of its employe relations program the creation of a strongly "competitive work force."

A "first-time-ever" from St. Regis on a new automatic control for dryer drainage. Also new change-off controls on air puff soot blowers in recovery boilers.

A round-table on bleaching, where seven superintendents "let their hair down" on chlorine dioxide, etc.

How Crossett experimented with table rolls on its 216-in. lightweight kraft Fourdrinier machine, finally changing from smooth rolls to all grooved rolls, with several favorable results in speed and quality. This

machine ran 8 hrs. on 30 lb. bag paper at 2,024 fpm, without a break, and now maintains an average of 1800-1850 on 30 lb. kraft.

WHAT CROSSETT DID WITH TABLE ROLLS—Alton C. McCaughan (pronounced "Mi-konn") gave this paper which he and A. W. Duskin, both asst. paper mill supts., prepared. A native Mississippian, who started at Moss Point, the former told how the Beloit vacuum pickup and cloverleaf press were added to speed up the machine. Then a larger forming area between breast and table rolls was built and experiments began with table rolls. First change was to have 8 wire-wound spirally-grooved brass table rolls, followed by 15 smooth micarta-covered rolls. Meanwhile two 4-in. forming boards were placed between each table roll. The 43-ft. forming section was one of the longest ever designed.

Later 8 galvanized steel boxes were attached below rolls 2, 3, 8, 9, 12, 15, 18 and 21 (there were 23 in all), which caught white water from its table roll and forming board. Boxes were set back 4 ft. from the edge of the Fourdrinier. Fiber removed at table rolls gradually decreased from first through last grooved roll, then suddenly increased at the first smooth roll and gradually decreased again. Water draining from grooved rolls contained less fines than from smooth rolls, confirming that fines were lost at the point of "jump."

Changes were made, but regardless of positions of smooth rolls, Crossett operators always got the "jump" at the point of transition to smooth roll, increasing as smooth rolls were moved toward the slice. So, gradually, all smooth rolls were eliminated, the completed Fourdrinier containing 8 original spirally wound brass grooved rolls and 14 straight grooved, hard rubber, straight fin rolls. The "jump" was eliminated and the record speed run was made. Drainage curve and consistency curve became smooth and unbroken with no sudden peak.

Average speeds were increased—on 30 lb. bag and wrapping by about 100 fpm. There was a slight increase in Mullen test, the average for 25 lb. converting kraft being 4.2 points higher for this year than 2 years ago. More fines are retained in the sheet. Pin holes were reduced.

MORE TALL OIL AND TURPENTINE CAN BE PRODUCED—The by-product status of the Southern industry was brought up-to-date by J. J. Goss, new technical director of the Crown Zellerbach subsidiary Gaylord Container Corp. (new lineup at Gaylord—Alfred Suter is res. mgr.; Wilbur Gillespie, ex-tech. director, is asst. mgr., and A. D. Levert succeeded Mr. Suter as gen. supt.).

SPEAKERS AT OPENING SESSION (l to r): J. J. (Jay) GOSS, new Technical Director at Gaylord Container, discussed South's byproducts; ALTON McCAUGHN, Mississippi-born Asst. Paper Mill Supt., Crossett, told how his mill's machine with kraft speed record, boosted it partly with grooved table rolls; and JOE BURNS, Beloit's Atlanta Rep, who discussed machine improvements.

Potential tall oil output in the South is 225,000 tons a year, based on 7,500,000 tons of pulp production, but only 75% of that amount is now made. It is now the cheapest source of fatty acids in the world and one of the most stable and abundant sources, said Mr. Goss. More tall oil is procured from green wood than stored wood. Virginia and North Carolina wood has a high percentage of fats; states farther South have a lower percentage. The cutting season has little influence on yield, he said.

More completely washed pulp yields more soap. He praised the technical work done at Riegel Carolina on soap skimming practices.

Inconel and Type 316 stainless steel, said Mr. Goss, are successfully used in fractionating towers to handle hot fatty acid vapor.

The paint and varnish industries used 36.5% of Southern tall oil, soap makers use 17.5% and other uses are varied.

The Southern mills produced 11.7 million gals. of turpentine in 1954, but could go to 38 million, he said. A mill should recover at least 2.5 gals. per ton of pulp, but recovery varies from 1.5 to 4 gals. In 1954, for the first time in history, sulfate mills' recovered turpentine exceeded gum spirits consumption.

He said some new lignin by-products of Southern mills are being watched.

NEW PAPER MACHINE FEATURES—Joe Burns, Beloit Iron Works representative in Atlanta and veteran engineer and erector, assisted by Beloit's Don Schamp, told of many new developments in press sections and suction rolls.

The air-loaded packing holder for suction rolls has replaced in many mills the spring-loaded holder. This has made possible changing suction box widths from the conventional 4 to 6 in. As for noises on high speed machines, he predicted sealing devices that will work under all conditions will soon be available.

The new arrangement on several

WELCOMING DELEGATES TO SAVANNAH—EARL GAUDET (left), Supt. at Standard Mfg. Co., Richmond, is signing up. At desk, from foreground (r to l): GEO. HARDAKER, Lockport Felt, GEO. WITHAM JR., Orr Felt (they are serving 15th year as Hospitality Committee); CLAUDE E. FELTON, Southern Paperboard Asst. Secy. and Traffic Mgr., and ED LUCZYSKI, Mfg. Supt. at Johns-Manville, Jarrat, Va. (they were Secy.-Treas. of two divisions); LILLIAN SCHIERER, Secy. to Mgr. Chas. McCarthy at Southern Paperboard, and MARY ANN THIPPEN, Secy. in Mr. Felton's office.

machines whereby air can bleed on both sides of the nip, applied at 2nd and 3rd presses, is one of the newest speed-up devices. He told how the air bleed principle was first developed on a Northern book paper machine using coating raw stock, in order to eliminate dry edges.

Because of this new arrangement, permitting widened suction boxes, suction rolls can now be used in the top position, and water can be effectively handled. As a result, machines now have an inverse press for printing grades and foodboards, especially, and higher speeds are possible.

He discussed the pickup felt, now widely accepted for speedup of newsprint, printing and kraft machines. Now the patented air bleed principle, for better water handling, is applied to these machines, their speeds will be even greater, he predicted. These processes are fully described and illustrated in previous articles in PULP & PAPER.

MORE THAN 150 INSTRUMENT APPLICATIONS IN KRAFT MILLS—That many were shown on a chart by H. S. Drinker, manager of the Pulp and Paper Division, Foxboro Co., and he said there were many more successful applications not listed.

His list showed 26 instrument applications on the paper machine, 16 in the bleach plant, 16 in recovery, 13 on brown stock washing, 12 on evaporators, 7 in chlorine dioxide generation, etc.

He showed many pictures of graphic, semi-graphic and other panels in mills from Alaska to the deep South. Besides washing and bleaching, he said evap plants and chlorine dioxide plants are good locations for graphics. More compact units are being developed for graphic panels. He continued:

"Buying on price, in effect, is like asking all druggists to settle on one remedy for fever. For a 300-ton mill the cost of instruments is only ¾ of 1% of the investment. It is sometimes better to do without, rather than pinch on the whole lot, and have inadequate instruments."

In emphasizing that instruments should be attractive and convenient to gain a favorable attitude on the part of operators, he said misunderstandings and lack of knowledge of process more than knowledge of instruments should be overcome.

"Digesters suffer from hypochondriacs, too," he said. "One of these repeatedly crawled into his digester to see if instruments were causing it to crack up."

NEW INFORMATION FROM I.P. RESEARCH—Considerable interest in the next paper was aroused—"What's in a Pine Tree for the Papermaker"—in which findings of the Research Laboratory of International Paper's Southern Kraft Division were disclosed.

There are 40 workers in that research center at Mobile, and the assistant director, Guthrie Mabrey, gave the talk. He and the director, John Gilbert, are both native Alabamians and both from that state's university.

Mr. Mabrey said I.P. found that pulp yield and qualities vary greatly in some different parts of a tree. Pulp yield per cord is proportional to specific gravity, which varies from 41 lbs. per cu. ft. of dry wood at the bottom of a tree to 29 lbs. at the top. Thus, there is 30% less pulp yield per cu. ft. from tops. Yield is slightly higher in slabs as compared with heartwood. Resins are higher in the bottom than the top.

There are also distinct quality differences, the I.P. researchers found. Slab wood products are appreciably higher in tear strength than heartwood but there is little difference in burst. Slab wood near the bottom of a tree gives a higher yield and better quality pulp and paper than any other part of a tree—significant news now that mills are using more and more sawmill chips, despite the uniformity problem of sawmill chips.

HOW INTERNATIONAL PAPER RATES PARTS OF PINE TREE—GUTHRIE MABREY, Asst. Director of Research, International Paper, Mobile, revealed how tops and bottoms of trees, slabs or heartwood, vary in pulp values. John Gilbert is his chief, Director of Research, heading staff of 40 at Mobile.

I.P. found there are definite losses in strength and yield in spring wood as compared with wood cut in the fall. Two or three months storage give appreciable losses, too. And Mr. Mabrey said fungicides are difficult and costly to apply to stored wood, and little is gained by them. But storing wood under water (pioneered by Crossett and Bowaters in the South) preserves rate of yield and strength.

The lesson to the industry is better handled wood makes better handled pulp. And Mr. Mabrey tipped off his audience to look forward to more International Paper Co. research which holds promise of improving the economic value of wood resources.

"HIGH MORALE AND A COMPETITIVE WORK FORCE"—These objectives were revealed as the goals that Bowaters is shooting for at its Calhoun, Tenn., mill. George R. Koons, industrial relations mgr., said it is easy to blame labor for mill problems or failures, but he contended that labor helps to maintain a competitive work force by keeping wage rates and classifications on a similar basis among mills.

He did warn against labor agreements being extended into activities or areas beyond intent of management—if one department does it, others are forced to.

He said "solid progress" has been made in techniques of selecting or screening employes, employment interviews, tests, etc. But more important, what are the practical results?

He drew a line between the re-

AN INTENT AUDIENCE AT SAVANNAH—Front row, l to r: DOUG SUTHERLAND, Vice Pres. of Sutherland Refiner; DICK TEMPLE, Valley Iron Works; RUSSELL BULLOCK, Supt., Johns-Manville, Natchez. Two men behind Mr. Sutherland are HAROLD BURROWS (left), Vice Pres. in charge of Sales, Raybestos-Manhattan Inc., and DENNIS J. FENELON, Pres. of Guaranteed Welding Engineering Co., Clifton, N. J.

A COUPLE OF SPEAKERS COMPARE NOTES—GEORGE R. KOONS, Industrial Relations Mgr. for Bowaters in Tennessee, tells how his mill builds "competitive work force" and H. S. DRINKER, Mgr. of Pulp and Paper Division, Foxboro Co., told of 150 instrument uses in kraft mills.

sponsibilities of operators for production and quality and of industrial relations technicians for employe selection, and when there are differences of opinion, top management must decide.

There is a high state of morale when employes reconcile their objectives with those of management, but there are no indexes to measure morale and it might deteriorate without warning signals. Many programs raise morale, but not any one can be called a "cure-all." Essential to success of any industrial relations program, said Mr. Koons, are:

1. High morale in management. 2. Competitive wages and benefits. 3. Daily supervision by first line supervisors. 4. Respect for human dignity. 5. Consistency and basic integrity of management in all matters.

HOW CHARLESTON MILL IMPROVED ITS MAINTENANCE—Charles A. Shoudy, asst. mgr. of production and maintenance, told how West Virginia's Charleston mill planned a new maintenance organization. Arthur W. Allison, Jr., maintenance supt., told how they put it into effect.

Attempts to coordinate divided responsibilities failed, so all the superintendents were named to a committee to tackle the problem. They play-acted they were a board of directors which had just bought the Charleston mill. This was to get away from personality problems. Union committeemen also were brought in, as well as a Harvard Business School professor, who helped consolidate and put their thoughts in writing. Questionnaires were sent down the line. Two men were sent to a Chicago maintenance show study group. They came home, saying the paper industry was extremely behind electrical, chemical and other companies.

Many companies were switching to "central maintenance with area supervision."

The Charleston committee had decided all maintenance must be under one head, that operators should have to contact only one person in maintenance, that a staff function should be planning and scheduling maintenance jobs, and that a maintenance line organization must supervise all field work.

But from Chicago came the clear conception that area staff men tell maintenance personnel what to do and when to do it. But that line organization of the maintenance department must still be responsible for how the man does the job. The key is that the area man is staff—he is staffed to the top maintenance man. Shops were broken down into functions that were related.

Great care had to be taken to put over the plan, explain the reasons, so feelings were not hurt. Many meetings were held. The unions were shown a slide film presentation. Others saw flannelboard presentations. It was a 2-year long "engineering" and selling job.

PUTTING SCHEME IN EFFECT—Mr. Allison then told how great care was taken in picking men for the new jobs. A maintenance superintendent—himself—has 4 area maintenance supervisors.

With the engineering and design of the maintenance department complete, time had come to put the theory into actual practice. The same procedure was followed in picking men for top jobs as was followed in picking equipment: the best man for each individual job was sought. The key to the success of implementation was the area maintenance supervisors, for they were assigned the delegated authority of handling four different areas. This system was used in place of using one single maintenance supervisor, since it was felt the mill was too big for one man to cover.

All department heads of the six major shops report to one man, the shops supervisor, who has full responsibility and authority over the maintenance workers, as do the area maintenance supervisors over the work. In the case of the shops supervisor, responsibility and authority are delegated downward to any level where all the facts necessary for an intelligent decision are available. Although mistakes were made, it was felt that withholding authority from the mechanic did not develop initiative. Because great care was taken in selecting the right man for each job, the new organization was without a

WORLD SERIES CAPTURES CONVENTION. All business at Savannah convention was suspended during final game of World Series and delegates watched TV sets.

AND THE DODGERS WIN (left) HANK JONES, of St. Petersburg, Fla., Manhattan Rep in South, in cowboy hat (he left his 2 horses home) offers 8 to 5 on Dodgers as game gets under way. (Right) Jubilant delegates (except a few Yankee fans) cheered lustily—picture taken just as Johnny Podres got his last Yank out on a grounder to win the series.

shops supervisor for three months because a decision could not be reached as to which of several men would be best.

When the supervisors were selected, meetings were held, problems discussed to determine what should be done under adverse circumstances. Role-playing between supervisors in which artificial personnel problems were created helped these men to better prepare themselves for problems to come. A staff technical group was even attached to the maintenance supervisor to make sure technical assistance was available to those shops needing it.

Now, 90% of the technical staff's work is done with men in the field.

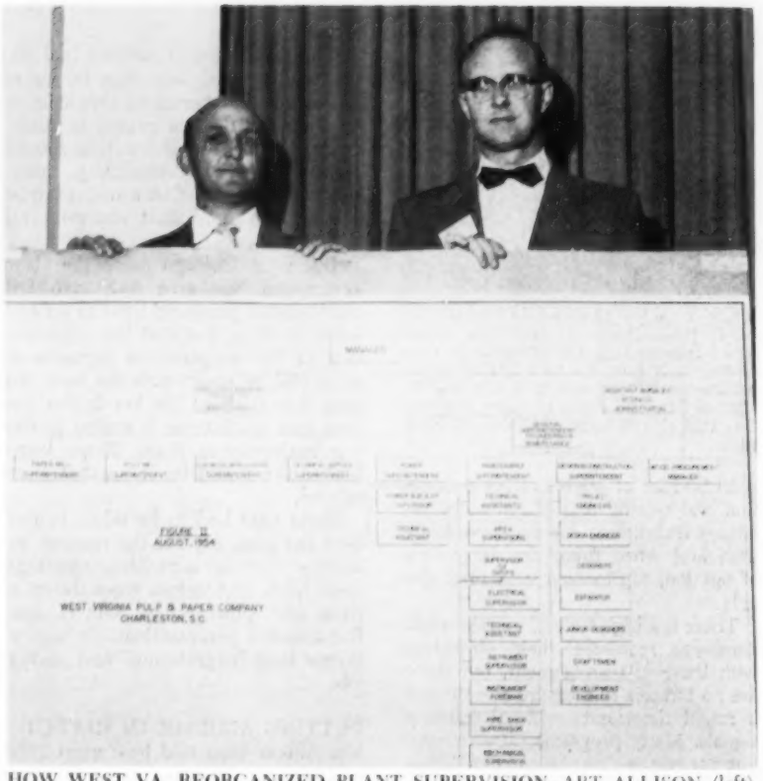
Perhaps the most rugged part of the whole program is the system whereby frequently inexperienced men are moved into important positions because the supervisor or someone comparable is off ill or away on business. The new man is put into the position with full supervisory powers until the regular man is back. This sometimes poses problems for both the new supervisor and the men under him but, Allison pointed out, in every case where this has been done thus far, the man has worked out better than the company anticipated and "much better than the man himself thought he would."

Major changes were made in the original plan when it was found that shop supervisors didn't have enough to do with planning. Today, men on lower levels frequently contribute valuable advice on how jobs should be done and these men play a more important part in the overall picture.

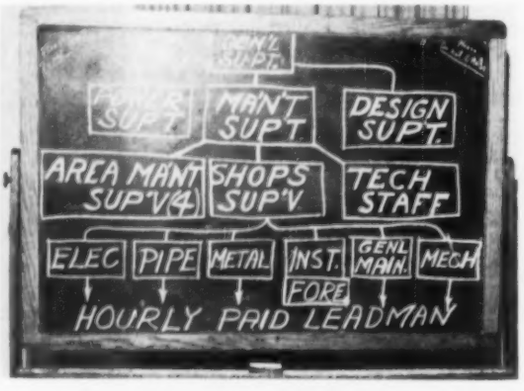
TWO NEW DEVELOPMENTS AT ST. REGIS MILL—One of the genuinely new things at the meeting—an outstanding event of the year—was the announcement and description of a new St. Regis-patented automatic dryer drainage control with Foxboro equipment, developed by Raiford "Red" Clements, power supt. at the Jacksonville mill.

Also developed at Jacksonville and described briefly is a new system of change-off controls on air puff soot blowers in recovery boilers. Leo Murray, instrument man at the Jacksonville mill, did work on this. The Diamond company is reported to be taking this over.

S. Kepple Pratt, assistant mill mgr. at Jacksonville, under John McDermott, who is also manager of all mills, was the speaker who "pointed with pride" to the work of Mr. Clements and Mr. Murray. Mr. Pratt is a Carnegie Tech graduate, formerly with West Va. P. & P.



HOW WEST VA. REORGANIZED PLANT SUPERVISION—ART ALLISON (left), and CHARLES A. SHOUDY (right) of West Va. Pulp & Paper Co., Charleston Mill, told how their mill reorganized maintenance. Chart shows new assignments and titles from Manager down—Under him at left is Asst. Mgr. of Production and Maintenance, at right asst. Mgr. of Business Administration, and Wood Procurement Mgr.



JOB BREAKDOWN UNDER SUPT.—Blackboard chart illustrated the job assignments were delegated to area maintenance supervisors (there are four of these) and shop supervisors (six of these), etc. Gen. Supt. (at top) is JOHN HOOVER.

What is described as entirely new and revolutionary about "Red" Newell's invention is the motivation. This is through a Foxboro recorder located on the drive side of the machine near the headbox. Any change in the theoretical head in the primary headbox motivates the mechanism and the recorder which in turn controls differential controls on each dryer section of the machine. There is a switch for manual control below the Foxboro recorder. This has only been used for occasional checking or adjustments.

Eight Foxboro differential controls are important elements in the automatic control of condensate removal on the big Beloit No. 1 Fourdrinier machine, which has three sections of dryers. St. Regis never has had to change the differential arrangement in 18 months of operation, adjusting automatically to machine speeds which have ranged from 750 fpm to 2,200 fpm. It is automatic from one point of control. Instrument men have recalibrated and checked it from time to time—that's all.

Steam consumption was brought down from 3.5 lbs. per lb. of paper to 2.9 lbs. The operation has gone as low as 10 in. of vacuum.

High Output of High Consistency Stock

Begins when

BIRD VIBROTOR SCREENS

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The following figures will give you an idea of the quantity and quality of stock produced with Bird Vibrotor Screens on the job!

45 tons of Unbleached Sulphite at 1.5% Consistency

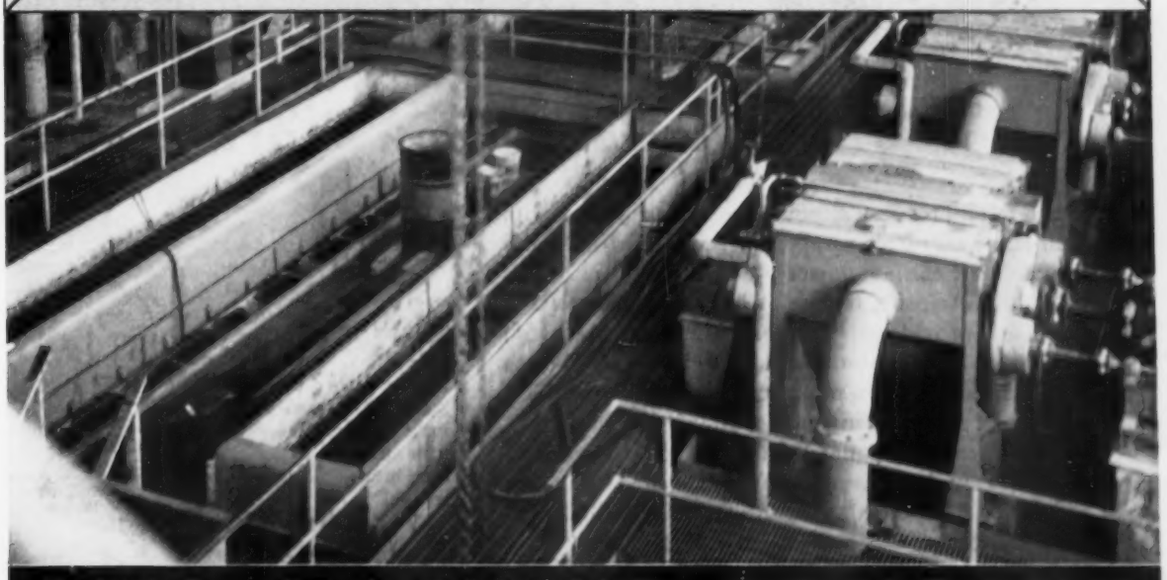
86 tons of Semi-Chemical Board at 1.7% Consistency

110 tons of De-ink Paper Stock at 2.2% Consistency

83 tons of News Print at 1.7% Consistency

These are average figures — Higher consistencies and larger tonnages are often produced.

Output like this — plus a substantial saving in space and cost — may well begin in your mill when Bird Vibrotor Screens enter the picture. Ask us for recommendations and estimates.



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SOUTH WALPOLE • MASSACHUSETTS

REGIONAL OFFICES: EVANSTON, ILLINOIS • PORTLAND, OREGON • DECATUR (Atlanta), GEORGIA

Unibestos lets steam pack more power

When high-pressure steam lines are protected with Unibestos, less heat escapes . . . more live steam is available for efficient power production.

Made of Amosite, Unibestos has strong, interlacing fibers that provide superior insulating protection with only *single-layer construction.* Easy to install, Unibestos is tough, durable insulation that withstands vibration . . . doesn't shatter even under extraordinary impact . . . inhibits corrosion. Built to last, it can be used over and over again without impairing its unmatched insulating properties. Unibestos® pipe insulation is available in sectional form through 44″ O.D.

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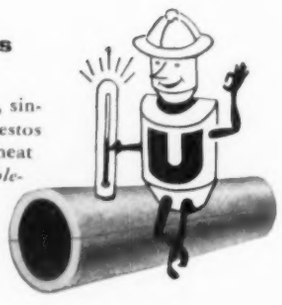
. . . Remember, single-layer Unibestos locks in more heat than most *double-layer* insulations!



UNION ASBESTOS & RUBBER COMPANY

1111 West Perry Street • Bloomington, Illinois

PLENTY OF REALISM IN SAFETY TALK—E. V. (AL) JOHNSON, Personnel and Safety Director, Munising Paper Co., put a lot of it in his talk to Supts. in South. Audience gasped when he whammed hammer down on dressy shoes—but they are really safety shoes in disguise.

SAFETY RECORD AT CROSSETT—C. Wayne Smith, production mgr. at Crossett Paper Mills, told how this mill had gone 3,000,000 man-hrs. without a lost time accident—since Nov. 16, 1953. It has gone 4,000,000 man-hrs. with only one such accident. The record was being furthered as this issue went to press. R. E. Bell is safety director at Crossett.

Mr. Smith credited the record to the fact that management "is thoroughly sold on safety." He told how causes of safety were analyzed and this report and other means were taken to arouse interest of employes.

WHAT IS OUR "STANDARD OF LIFE"?—Al Johnson, personnel director of Munising Paper Co., Munising, Mich., journeyed 1,400 miles from his home to Savannah to deliver a power-packed warning on safety, not only in the mill, but at home and on the highway as well. Johnson made one interesting, rarely-recognized point right off the bat. It was this: when a worker is involved in an accident outside the mill, the mill still must get along without him. Safety, therefore, is not just a question of safety glasses and hard-toed shoes—it is a matter of care and alertness all the time.

To punch home his comments, he not only came amply supplied with thought-provoking and oft-times shocking figures, he dramatically demonstrated what he was saying.

"We have the highest standard of living in this country," said Johnson, "but what is our standard of life?" He pulled out figures which proved that it is pretty low. Of 38 countries in the world, the U. S. ranks 37th in accident rate. Accidents cost Americans 9 billion, 800 million dollars a year. In industry alone, it is a third of that—3 billion, 300 million dollars. Every year, industry is deprived of 230 million man-days due to accidents.

The highest group of persons killed: semi-skilled workers. (The second group, amazingly, is housewives.)

One company, said Johnson, proudly showed a record of losing only 8 men off the job due to accidents in one year. The same company was somewhat abashed when it was pointed out that they had lost 128 men in the same year due to accidents outside the mill.

In 124 mills, queried on the cost of their worst accident in 1954, Johnson reported a staggering figure of $1,280,000. The average cost per accident, he pointed out, was more than $10,000.

"Recently a union executive told me that when a man is physically able to work 365 days a year, that's ten times better than a guaranteed annual wage," he said.

To hammer home his points, Mr. Johnson continually demonstrated what he was saying. While discussing the advantages of safety shoes and the fact that they need not be cumbersome or ugly to look at, he hammered incessantly on the steel-reinforced toe of a good looking pair of dress shoes—safety shoes in disguise.

To prove that communication is a problem, he had four men stand back to back, gave them simple directions on tearing several holes in a piece of paper, told them to look at the paper when they were through—none of them had torn the holes in the same manner.

In the middle of a discussion on safety glasses he jerked a pair off his face, tossed them 12 feet away against a wall. "See, they don't break." Then to make his point that safety glasses were essential, he passed several glass eyes around the room. Suggested supervisors show glass eyes to workers who object to glasses. "They look nice, but you can't see through them."

CHLORINE DIOXIDE OR NOT?—Seven of the nation's leading bleach plant superintendents gathered together on the last business day of the meeting to toss around the pros and cons of bleach plant operation.

The meeting was short, devoted mostly to questions and answers, but information was by no means hard to come by.

The experts: Roland Fortier, St. Mary's Kraft Corp.; Lewis White, St. Regis; Cecil Hamilton, North Carolina Pulp Co.; J. K. Dyer, Bowaters Southern; R. E. L. Wheless, Camp Manufacturing Co.; George Seymour, Brunswick Pulp & Paper, and Ray Brown, East Texas Pulp & Paper.

The discussion was mostly a comparison of chlorine dioxide methods with straight hypochlorite bleaching processes and questions on chlorine dioxide procedures. Of the seven, only three—Messrs. Brown, Wheless and Fortier—represented mills which use the chlorine dioxide method.

Mr. Fortier said in his opening remarks that he believed St. Mary's was the first plant to bleach with chlorine dioxide in two stages without any hypochlorite. Mr. White said that their plant is designed to produce bleached pulp for two different machines and grades simultaneously, with a system for by-passing some of the bleaching stages for these grades. Mr. Brown's firm uses a five-stage bleach with chlorine dioxide in the final stage, producing, he said, between 300 and 350 tons a day.

Brunswick, said Mr. Seymour, uses a conventional 5-stage bleach with peroxide spray bleach for the machine. At Bowaters, only 3 stages are used for pulp of 60 to 70 brightness for newsprint. Camp's plant, said Mr. Wheless, produces 300 tons a day in a 5-stage bleach system, including a Solvay chlorine dioxide stage for the past year.

Mr. Hamilton said North Carolina Pulp produces 200 tons a day in conventional 5-stage system.

Under questioning, the panel all agreed that best temperature for chlorine bleaching was 85° Fahrenheit or

Touring Southern Mills

H. B. (WHITEY) WILSON (left), appeared at his first convention as a Rice Barton Sales Representative at the Savannah meeting. He lives in Savannah and will cover the South. Mr. Wilson was born in Newark, Del., attended U. of Delaware and U. of Maryland. Since serving in WW II with Engineers Corps, he has been associated with papermaking machinery sales in the south.

FRED WILKERSON JR. (right), works out of Montgomery, Ala., plant of Appleton Wire Works and did his initial traveling with George J. Maye, veteran Southern Appleton Wire man, who continues to head sales there. Young Wilkerson, born in Montgomery, graduate of Huntingdon College, is one of 5 young Alabamans employed by Appleton Wire—others are attached to the plant as Foremen: Richard Calhoun, Charles Wilson, B. R. Miller and Bill Shirley. Another Montgomeryite, Fairley McDonald is Office Mgr. and Al Kranzusch, from Appleton, is Supt.

under. Both Mr. Wheless and Mr. Brown made the point that water temperature control is too costly, so they take what they can get. ("But be careful—over 85° hurts quality.")

Mr. Fortier was of the opinion that at temperatures of 70 to 75 it was impossible to hurt stock no matter how much chlorine dioxide was put in, but at 90 and above, quality definitely suffers. Another expert said tests showed that 82° was a pretty ideal temperature for bleaching.

On one point they all agreed—the best bleaching consistency seems to be 3½%.

Mr. Fortier said that St. Mary's has experienced less pulp shrinkage using chlorine dioxide than with hypochlorite systems. He said in many mills shrinkage was as high as 6 to 9% with hypo, wheras 4.2% was as high as they had ever gone since using chlorine dioxide at St. Mary's. He said it has gone as low as 3%.

On one point there seemed major disagreement. One panelist said in his opinion chlorine dioxide was no more expensive than hypo, considering all things. He pointed out that in the event of breakdown, stock can sit in the tower 8 hours in chlorine dioxide and still be usable, whereas it will burn up in that length of time in hypo. Another panelist said that even considering all aspects, hypo is a great deal cheaper than chlorine dioxide.

IMPORTANCE OF TESTING INSTRUMENTS—Dr. G. C. Kimble, assistant technical director of Union Bag & Paper Corp., came armed with several slides and some important hints on instrumentation testing and standardization.

He bore down heavily on the importance of instrument checks—making sure they are reading correctly and are in balance. As an illustration, he used a slide showing how an out-of-balance instrument measuring quality control of paper rolls gave off readings indicating the specific limit was 10% instead of the correct 1%. Because of this error, Dr. Kimble said, several rolls of paper were discarded as inferior when actually they fell well within the designed limits.

"We in the paper industry cannot afford poor instrument performance," he said.

Dr. Kimble said of top importance were: Coordination of groups involved in taking and recording instrument readings to insure correct observation and reporting of all readings; a good system of scheduling and recording readings; and the best possible instruction to technical maintenance groups in charge of working on instruments.

Kimble recommended a company manual outlining details on instrument maintenance. Union Bag recently completed such a book and is finding it of great help.

Felton Captures Prizes

Claude E. Felton, Southern Paperboard secretary and traffic manager, won both the Eastwood-Nealley and Williams-Gray golf trophies with a 76 low gross and 71 low net.

Herb Fishburn, of Williams-Gray, and Vernon Knight, of Eastwood-Nealley, presented splendid trophies.

Mrs. John Hoover, wife of the Charleston, S.C., mill superintendent, and Warren J. Bull, tech. asst. to paper mill supt. at Canton, N.C., were the fishing "champions."

Ken Youngchild of American Cyanamid; Mr. Knight; Buster Griffiths of Draper Bros.; Geo. Witham of Orr Felt; Geo. Hardaker of Lockport Felt, were among affiliates who did outstanding work in making arrangements.

Veteran superintendents trustee, Bill Brydges, mentioned Southern Paperboard and Champion as companies which helped put over a successful meeting.

Bert Cooper with Western Michigan Associates

BERT H. COOPER (center), as Chairman greets two new members of advisory committee to the paper technology department at Western Michigan College; DWIGHT H. STOCKER (left), of The KVP Co., and DR. J. J. HARRISON, of Marathon Corp.'s new acquisition, Michigan Carton Co.

This Kalamazoo Civic Leader Keeps Busy

● Vice President Bert H. Cooper of Kalamazoo Paper Co. is a frequent visitor to the campus of Western Michigan College, although the school is a far cry from Michigan's Western State Normal School where he studied in 1909.

He is now in his second year as chairman of the advisory committee of Western Michigan's paper technology department, a development of modern times unthought of in his school days. The advisory committee was formed in 1948 to aid in development of new studies in paper technology. Prominent paper industry and supply company officials from all over Kalamazoo Valley have been called upon to assist in this work.

Mr. Cooper is a busy man, meanwhile, as vice president in charge of purchasing for Kalamazoo Paper.

A native of Kalamazoo, he graduated from Central High School, then spent a year with the old Henderson-Ames Co. as a bookkeeper before studying at Western. Then followed two years with the old Michigan National Bank, and in 1911 he joined the staff of Riverview Coated Paper Co. as a bookkeeper.

In 1915 Kalamazoo Paper Co. took over Riverview, and Mr. Cooper went along with the transaction. He became vice president in 1942.

During his tenure he has served under four presidents of Kalamazoo Paper—Fred M. Hodge, Alfred E. Curtenius, George T. Jubb and now James A. Wise.

Mr. Hodge was first president of the Kalamazoo YMCA, an activity in which Mr. Cooper has been prominent for many years. He has participated there for 51 consecutive years, and since 1919 has served on the Y's board of directors and as a trustee. He has also been chairman of the board.

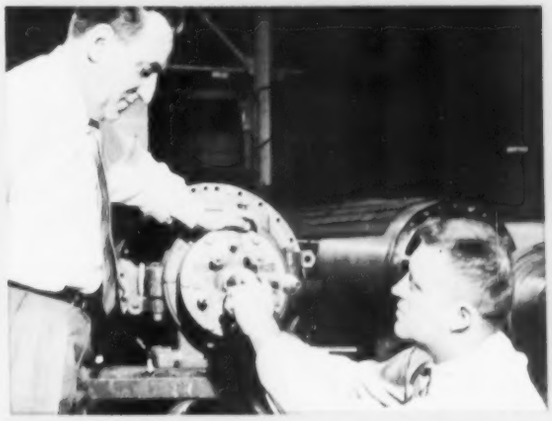
Civic duties have never been shirked by Mr. Cooper. He has participated in every Community Chest drive, has served on the Chest board, as its president and as general chairman for the drive.

The Home for the Aged in Kalamazoo also occupied his time. He has been a board member there many years. This spring he retired from the board of the Second Reformed Church.

When one talks to Mr. Cooper about his five sons, one sees a glow of pride: Dr. John Cooper is an associate professor at Ohio State University; Dr. Paul Cooper is a surgeon in Kalamazoo; Peter Cooper is a student at Western Michigan College, and his two youngest are James and Mark.

The Beloit Album

VISITORS TO BELOIT IRON WORKS, Beloit, Wisconsin, are greeted by this familiar sign extending for more than a hundred feet across the top of the pipe roll shop. From this huge plant, established in 1858, comes Beloit papermaking machinery known throughout the world. Currently under way is a gigantic expansion program which, when completed, will add over 176,000 square feet of manufacturing area to the 17.5-acre plant. A pictorial progress report appears on the following pages.



ITALIAN VISITOR Dr. Piero Bersano *(left)*, Technical Director of Cartiere Burgo, Torino, Italy, and Beloit's Foreign Sales Representative, C. K. Pfrangle, examine a Beloit suction box on the suction roll erecting floor, Beloit.

ROBERT GAIR'S William Schnorbach *(left)* recently visited Beloit to discuss the design of a new Kraft Paper Machine. Mr. Schnorbach is shown discussing specific details with Beloit Sales Engineer C. H. Swartz.

BOWATERS NEWFOUNDLAND Plant Engineer F. Dickson *(left)*, General Superintendent Newsprint H. A. Kelly, Research and Development Engineer M. C. Collins, and Beloit Sales Engineer A. G. Olson visit the main erecting floor to examine an Air-cushioned Inlet designed for a high-speed newsprint machine. An inlet, similar to the one pictured above, is installed on Bowaters' recordbreaking No. 1 newsprint machine at Calhoun, Tennessee.

TREES FOR TOMORROW 20,000 Norway pine and spruce were planted recently on property near Beloit Iron Works. P. J. Onkels, Mill Manager, Pacific Coast Paper Mills, stopped in to watch the planting. *(l. to r.)* R. A. Goodwillie, Beloit West Coast Representative; Mr. Onkels; W. S. Wood, Beloit Vice President; and William Sylvester, forester with Trees for Tomorrow, Inc., an industry-sponsored organization for the advancement of reforestation.

Beloit's Expansion Program

Vigorous expansion has been the watchword of the pulp, paper, and paperboard industry over the last decade.

To supply the needs of its customers, Beloit Iron Works has undertaken an almost continuous program of expansion and development. This issue of the Beloit Album brings you a pictorial progress report on our current expansion program.

The new suction roll and drive erecting floors—11,000 square feet—were occupied June 1, 1955. The welding shop addition, over 10,000 square feet, and the new machine shop, over 32,000 square feet, will be completed by the time this issue of the Beloit Album reaches you. Enlargement of the main

foundry bay, a new dryer and roll casting floor, new core room, and expanded storage facilities—totaling over 100,000 square feet—will be completed during 1956. Foundry plans also include the installation of new melting, moulding, and sand-system facilities.

Plant engineers have carefully planned and checked each detail of construction and tooling. High-speed modern machine tools, planers, lathes, boring bars, gear hobbers, and milling machines, to mention just a few, are being installed as quickly as space is available. These new tools, plus careful rearrangement of existing facilities, all add up to one thing—better service.

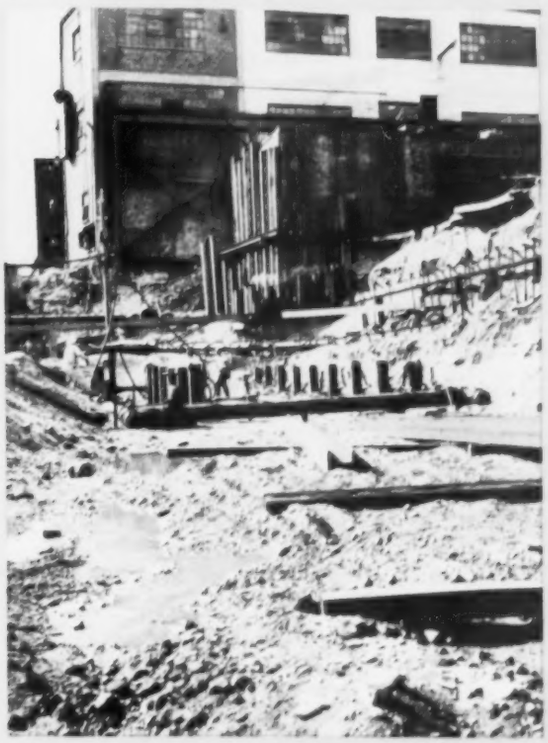
An expansion program means more than buildings and tools. It means people—highly trained personnel ready to translate customer requirements into completed papermaking machinery. Beloit Iron Works, now employing more than 2,000 capable men and women, anticipates a payroll of 2,300 persons when this expansion is completed.

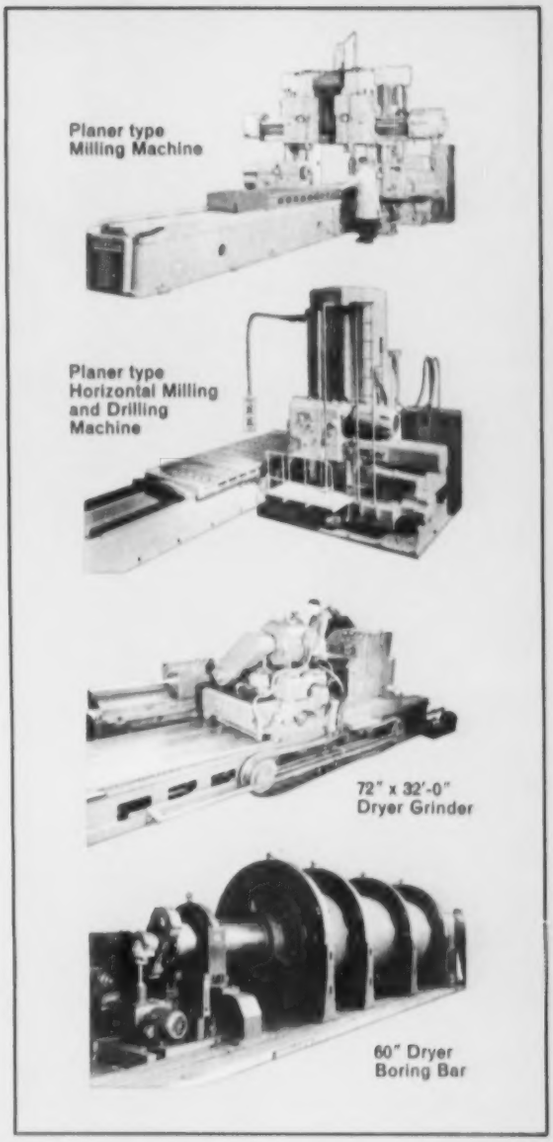
NEW MACHINE SHOP *(above)*, over 32,000 square feet, will house planer millers and large boring bars. A 20-ton bridge crane and 7½-ton floor-controlled crane will service these machine tools. Balcony area will provide increased room for stock storage, making more parts readily available to meet customer requirements.

CONSTRUCTION WORK *(below)* goes on high above floor of welding department addition. New welding shop (10,000 square feet) will provide space for larger, longer fabrications. An automatic welding machine, capable of handling beams 70 feet long, has been installed. Straighteners, grinders, and a sand-blasting unit have been added to the welding department's tool roster.

ADDITION *(above)* adds 11,000 square feet to suction roll and drive erecting floors, increases total erecting areas to over 33,000 square feet. Space will be used to assemble and check each unit before it leaves Beloit shops.

HUGE PIT *(below)* will provide additional 100,000 square feet of foundry space, more than enough to offset demand for castings created by machine shop expansion. Facilities will be installed for casting rolls and dryers 360 inches long. Pumps control seepage below level of Rock River.





Above: A few of the machine tools that are being added to Beloit shops during plant expansion.

your partner in papermaking

BELOIT

PAPER MACHINERY

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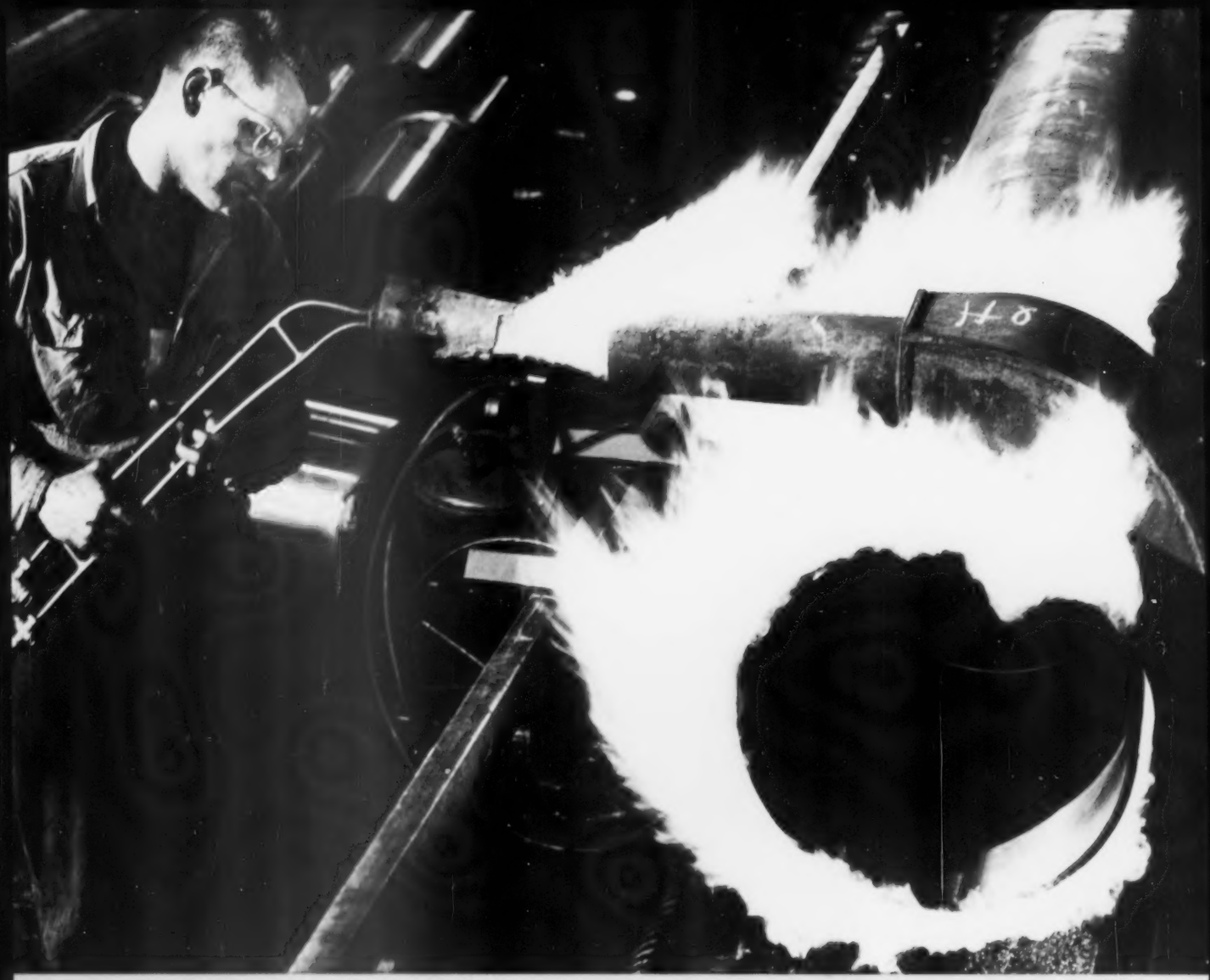
WHEN YOU BUY BELOIT . . . YOU BUY MORE THAN A MACHINE



J. W. MILLER

"THE HEAT'S ON"—In the photograph above, "Pete" Landis, hydraulic press operator in the Beloit Iron Works pipe roll shop, is seen preparing a 20-inch reel spool body for the head fit. The head will be inserted into the machined and heated pipe. Contraction of the cooling pipe will clamp the head in place.

Super strength and extremely accurate balancing are requirements of Beloit reel spools, even more than of the other pipe rolls which carry the wire, felt, and sheet of paper in the papermaking process. Sheets rewound at winder speeds up to 6,500 feet per minute impose extreme surface speeds on these spools.

Years of trouble-free service are insured by Beloit's rugged design and meticulous manufacturing techniques based on almost 100 years of service to the paper industry. Beloit Iron Works was founded in 1858.

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BELOIT

PAPER MACHINERY

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PULP & PAPER

What's New in the World of Woodpulp

Noticias Mundiales de la Industria Pulpera

BIG INTEGRATED WOOD DEVELOPMENT FOR SOUTHERN MEXICO—Here is first news, exclusive to PULP & PAPER, of a vast integrated wood-use industries development is coming to Southern Mexico. For eight years, a United States company, the Vancouver Plywood Co., has quietly been accumulating vast timber holdings in the state of Chiapas, about 1,000 miles south of Mexico City. The mills and plants, including a 100 ton a day neutral sulfite semi-chemical pulp plant, will be built at Santa Margarita, near the Guatemala border. Plywood, lumber and other products also will be made, utilizing 28 wood species. The pulp will be for sale.

Over 28 billion feet of hardwoods will be available to the mill. Experimental laboratory work has been carried on in Mexico City. The laboratory has pulp sisal, too, and this vegetable fiber may also be utilized.

The company, Maderera Maya S.A., is headed by Frost Snyder, of Tacoma, Wash., U.S.A. Tom H. Mills, from Portland, Ore., U.S.A., is general administrator in charge at Santa Margarita

Herman Simpson, consulting engineer of (Central Building) Seattle, Wash., U.S.A., who has engineered projects for several North Pacific Coast mills, and who is a former resident manager of the big Crown Zellerbach mill in Port Townsend, Wash., has been the consulting engineer on this project. He recently returned to Seattle from Mexico.

GRAN INDUSTRIA MADERERA EN MEXICO—En seguida publicamos por primera vez y exclusivamente la noticia de un gran prvoecto industrial comprendiendo todos los ramos del uso de maderas, que se establecerá en Mexico. Desde hace ocho años la Vancouver Plywood Co. ha hecho adquisiciones de terrenos en el estado de Chiapas, a unas 1600 km. al sur de la capital de Mexico. Se edificarán fábricas inclusive una de 100 toneladas diarias de pulpa semi-química de sulfito, en Santa Margarita, cerca de la frontera con Guatemala. Se fabricarán madera corriente y laminada y otros productos forestales, utilizándose 28 especies de maderas. La pulpa se ofrecerá de venta.

Habran disponibles más de 28.000.000.000 de pies de maderas duras. Se han hecho los experimentos y estudios del caso en los laboratorios de Mexico, donde se ha fabricado pulpa de sisal, material que también se piensa utilizar.

A la cabeza de la compañia, llamada Maderera Maya SA, está el Sr. Frost Snyder de Tacoma, Washington, EUA. El Sr. Tom H. Mills, de Portland, Oregon, será administrador en Santa Margarita.

El Sr. Herman Simpson, ingeniero consultor, Central Building, Seattle, fué consultor del proyecto. El Sr. Simpson ha sido ingeniero en varias plantas norteamericanas y fué gerente de la gran fábrica Crown Zellerbach en Port Townsend, Washington. Regresó ultimamente a Seattle de Mexico.

ED T. HEWITT, director of Electric Steel Foundry Co.'s new export division—Esco International—with offices at 420 Lexington Ave., New York. This company makes stainless and alloy castings and supplies equipment for chemical pulp mills throughout the world.

SR. ED T. HEWITT, director de Esco International, nueva dependencia para exportaciones de la Electric Steel & Foundry Company, 420 Lexington Ave., Nueva York. La compañia fabrica fundiciones de acero contra-corrosivo y equipos para fábricas de pulpa quimica en todas partes del mundo.

SR. HERMAN SIMPSON, ingeniero consultor de las nuevas industrias madereras en Santa Margarita, Chiapas, Mexico. Este distinguido ingeniero mantiene despacho en Seattle, EUA, y se ha encargado de otros semejantes proyectos en Norteamérica. Anteriormente fué gerente de la fábrica de Kraft de la Crown Zellerbach en Port Townsend, Washington, E. U. A.

HERMAN SIMPSON, who is Consulting Engineer for a major wood products multi-unit industry at Santa Margarita, Mexico, near the Guatemala border. He is a distinguished industry engineer with offices in Seattle, who has worked on similar North American projects. He was a former Manager of Crown Zellerbach kraft mill operations at Port Townsend, Wash., U.S.A.

ESCO ESTABLISHES EXPORT DIVISION—Electric Steel Foundry Co., Portland, Ore., has established a new division—Esco International—to handle its export business. Esco International is based at 420 Lexington Ave., New York, U.S.A., and the director is Ed T. Hewitt. This new division also has branch offices at 2167 N.W. 25th Ave., Portland, Ore., U.S.A., and San Francisco, U.S.A., and has representatives in principal cities throughout the world. Esco makes stainless steel and other high alloy castings used internationally in chemical pulp mills and they have specialized in corrosion resistant materials for chemical pulps. Esco also makes logging rigging, chains and other sawmill equipment. The cable address is ESCOint, New York.

EXPORTACIONES ESCO—La Electric Steel & Foundry Company, Portland, Oregon, EUA, ha establecido una dependencia llamada Esco International, para efectuar exportaciones. La Esco se radica en 420 Lexington Ave., New York, y el director es el Sr. Ed T. Hewitt. La Esco International tendrá sucursales en 2167 NW 25th Ave., Portland, y en San Francisco, California, con representaciones en todas partes del mundo. La empresa fabrica fundiciones de aceros contra-corrosivos que se usan enfábricas de pulpa quimica. También fabrica cadenas y aparatos para la saca, y equipos para aserraderas. La dirección cablegráfica es ESCOint. Nueva York.

SCOTT MOVES INTO MEXICO—Scott Paper Co., now one of the "Big Five" of the American industry with sales likely to be near $240,000,000 this year, is going to make

LA SCOTT EN MEXICO—La Scott Paper Co., que se cuenta entre las "cinco grandes" de la industria norteamericana puesto que sus ventas probablemente ascenderán a 240.000.000 dls. en 1955, fabricará y venderá sus productos en Mexico. El Dr. Dante Sandro Cusi, conocido presi-

and sell its trade-marked tissue and other paper products in Mexico. Dr. Dante Sandro Cusi, noted Mexican president of Ca. Industrial de San Cristobal, S.A., Mexico City, joins with Scott Pres. T.B. McCabe in announcing their new partnership. Dr. Cusi pioneered use of cane bagasse for paper products in his mill.

HOW WATTLE WOOD IS USED—From our correspondent in South Africa comes word that the heralded use of wattle wood to make dissolving rayon pulp in the new mill of S.A. Industrial Corp., Natal, Union of South Africa, should not be exaggerated. He explains that South African-grown wattle wood will supplement local eucalyptus. Wattle wood is also being exported from South Africa to Italy to use in one of the parent companies of Natal's SAICCOR, Snia Viscosa in Torviscosa, Italy. The pulp-rayon firm of Snia Viscosa is engineering the new Chihuahua dissolving pulp mill in Mexico. For pictures of the Natal and Torviscosa mills and more on Snia Viscosa activities see sections on those countries in our 1955 WORLD REVIEW NUMBER.

REGROWTH EXCEEDS CUT IN SWEDISH FORESTS—The Swedish-International Press Bureau reports that two country-wide national forest censuses have been carried out in that country, the first ending in 1929, the second just two years ago. Both were based on a sampling method. If trees of at least 10 cm. breast high diameter are taken into account, the increase in timber supply between the two dates was calculated at 6%. Sawtimber trees, at least 25 cm. diameter, increased more rapidly, by about 12%. The latest survey shows total timber standing as 1,900 million cu. meters (1 cu. meter equals 35.3 cu. ft.) of solid mass with bark. Spruce is the principal wood (807 million cu. meters). Pine is next (747 million meters). Birch and other deciduous trees have a volume of 302 million meters.

The quantity of coniferous timber available to forest industries is estimated at over 30 million cu. meters per annum. No essential changes in this quantity for use are foreseen in the next ten years. Consumption, the survey indicates, has not been as great as resources would have permitted. For five years ending in 1950 consumption averaged 25.5 million cu. meters per year, 50% for pulp, 50% for other timber products. In 1954, pulp production was 10-15% higher than in 1950, when it was nearly 14 million cu. meters. Sawmill output was 1 to 2% below 1950. So, production is figured as running about 5% below potential usable growth.

However, there is one catch. The supply of spruce is running 1 or 2% below requirements. But spruce resources are increasing more rapidly than pine, so this is expected to right itself. Hardwoods, in Norrland especially, and sawmill waste have been utilized only on a small scale.

dente de la Cia. Industrial de San Cristóbal, SA, de Mexico, nos participó la noticia de su asociación con el Sr. T. B. McCabe, presidente de la Scott. El Dr. Cusi originó la utilización del bagazo de caña en su fábrica.

UTILIZACION DE ACACIA—Nuestro corresponsal en Sur Africa nos advierte que no se ha de exagerar la importancia de la utilisación de madera de acacia o guacia en aquel país pra fabricar pulpa para rayón. Nos explica que en la planta nueva de la South Africa Industrial Corp. de Natal, dicho material indígeno suplementa el eucalipto. La acacia también se esta exportando a Italia donde la usa la Snia Viscosa de Torviscosa, empresa madre de la SAICCOR de Natal. La Snia Viscosa es la empresa encargada de la ingeniería de la nueva fábrica de pulpa para disolver en Chihuahua, Mexico. Véanse las fotos de las fábricas en Natal y Torviscosa, y las crónicas de la Snia Viscosa en nuestro numero WORLD REVIEW (Revista Mundial), 1955.

MAS REPOBLACION QUE CORTE—En Suecia el bureau internacional de noticias da a saber el resultado de dos estudios forestales hechos uno en 1929 y el otro terminado hace dos años, ambos elaborados a base de espécimenes. Contando los árboles de 10 cm. o mayor diámetro al alto de pecho, se indica que aumentó la cantdad disponible por 6% en el período entre estudios; contando los árboles para aserrar, es decir de 25 cm. o mayor diámetro, el aumento fue a 12%. Según los últimos estudios hay actualmente 1.900.000.000 metros cúbicos de madera forestal inclusive la corteza. La principal especie es el abeto (807.-000.000 m. cu.); sigue el pino (747.000.000); de abedul y otros semejantes existen 302.000.000 m. cu.

La cantidad disponible para elaboración en las industrias forestales se calcula en más de 30.000.000 m. cu. cada año, sin cambios notables en vista por diez años adelante. El consumo no ha sido tanto como hubieran permitido los recursos forestales, según indica el estudio. Durante cinco años terminando con 1955 se consumieron 25.500.000 m. cu. cada año promedio, siendo 50% para pulpa y 50% para otros productos de madera. En 1954 la producción de pulpa fue de 10% a 15% mayor que en 1950 cuando se produjeron cerca de 14.000.000 m. cu. La producción aserradera estuvo a 1% o 2% menos que en 1950, de suerte que la producción se calcula en cerca de 5% menos que el aumento forestal.

Aparece un pero: la cantidad disponible de abeto corre a 1% o 2% menos que lo pedido. En cambio, el abeto forestal está aumentando más rapidamente que el pino, lo que se espera corregirá la situación. Las maderas duras y el desgasto de las aserraderas se han utilizado poco, especialmente en Norrland.

EDITORS NOTE—

Worldwide commerce in woodpulp is setting new patterns as well as new records. As a service to many subscribers to PULP & PAPER in other countries, we are now publishing this news in both Spanish and English.

PAY IN STERLING—If you live in one of the sterling monetary countries or anywhere in Europe, you can conveniently subscribe to PULP & PAPER by writing to HAROLD P. DE LOOZE, Ltd., 8 Peter St., Manchester, England. You can pay for your subscription in sterling currency. A one year subscription, which includes the WORLD REVIEW NUMBER, with sections on every country in the world with pictures, statistics, etc., costs $5 or British lbs. 1.15.9. For two years, it is $8 or British lbs. 2.17.2.

Hoy día en el comercio mundial de pulpa se están realizando grandes cambios, al mismo tiempo que dicho comercio aumenta notablemente. Con el anhelo de mejor servir a nuestros muchos lectores, mensualmente publicamos nuestras noticias mundiales en espanol e inglés.

ABONOS EN ESTERLINA—Si el lector vive en país de moneda esterlina o en Europa, puede hacerse suscriptor a PULP & PAPER comunicándose con Sr. Harold P. DeLooze, Ltd., 8 Peter St., Manchester, Inglaterra, enviando el abono en moneda esterlina. El precio de la suscripción anual, inclusive el número WORLD REVIEW (Revista Mundial) lleno de fotos, datos y revistas de la industria en todos los paises del mundo, es a 5 dls. o sean L1/15/9 en moneda inglesa; por dos años, 8 dls. o L2/17/2.

Here's the chain endurance you need for pulpwood handling

Solid elliptical barrel has extra metal for added wear-depth at the sprocket contact.
Broad top and bottom surfaces resist sliding wear.
Locked steel pin maintains sidebar spacing, insures proper lateral clearance, prevents binding of center link. Cadmium-plated pins available.
Pins locked against rotation in steel sidebar can be cottered (shown) or riveted.

LINK-BELT Class C Combination Chain provides long life under constant pounding

IT takes a good chain to stand up to the constant tumbling and pounding of heavy pulpwood logs. That's why woodyards the country over select the economical Link-Belt Class C Combination — a sturdy mating of steel sidebars with center links of rugged malleable iron, cast steel or longer-wearing, file-hard Promal.

Choose Link-Belt chain whenever you're after the right answer to any drive or conveying problem. Included in this complete line are cast, combination, forged and fabricated steel types. And to add even greater wear life, ask for facts on specially-treated attachments. Contact your nearest Link-Belt office or authorized stock-carrying distributor.

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Looking for the best chain for your needs?
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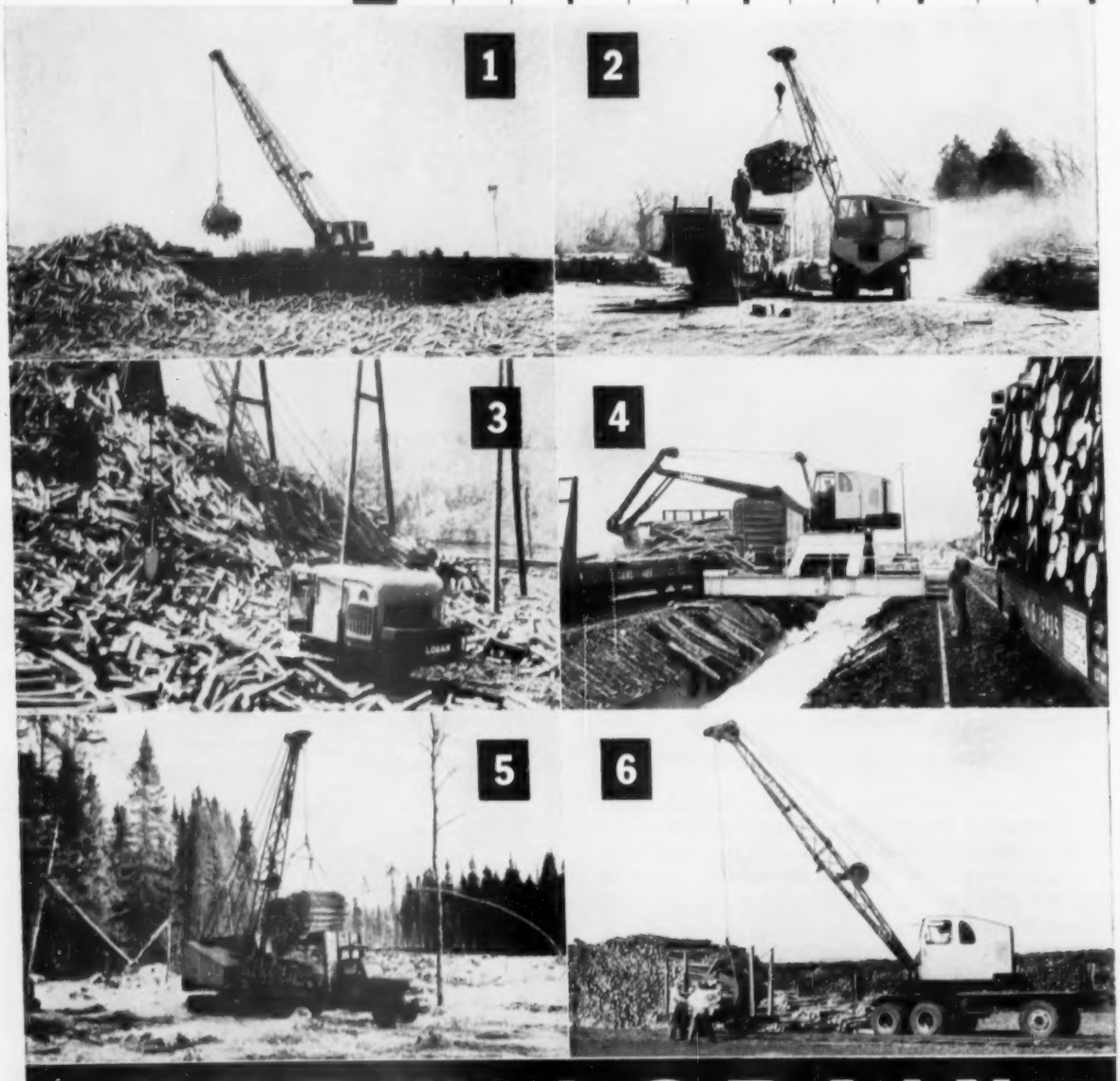
CHECK LIST FOR PULPWOOD HANDLING

If handling pulpwood is one of your operations, you will want to check the chart at the right. Look under the location of the job—the kind of wood—the device needed—and the mounting required. You'll be referred to a picture below that shows how Lorains have already solved the problem. Your problem, too, can be solved with a Lorain. Ask your nearby Thew-Lorain Distributor to help you.

THE THEW SHOVEL CO., LORAIN, OHIO

SEE PHOTO	LOCATION			KIND OF WOOD			DEVICES				MOUNTINGS		
	WOODS	YARDS	MILLS	STACKED WOOD	WET WOOD	JACK STRAWED	SLINGS	GRABS	GRAPPLES	RAKES	CRAWLER	RUBBER TIRE	SPECIAL
1		✓			✓	✓		✓			✓		
2		✓		✓			✓					✓	
3			✓			✓		✓			✓		
4			✓	✓						✓			✓
5	✓			✓			✓				✓		
6			✓	✓					✓			✓	



THEW-LORAIN®

THIS IS WOODS-FAMED PALLET SYSTEM conceived by LUCIAN WHITTLE, Woods Div. Manager, Brunswick Pulp & Paper Co., and now widely used in South. BILL FLOWERS, pulpwood producer, said that pallets increase efficiency 50%.

How Brunswick Stabilizes Production

Middle man eliminated in big Georgia pulpwood operations as company deals direct with wood producers

Ed J. Gayner III, president of Brunswick Pulp & Paper Co., was obviously so pleased with new wood production policies introduced at his mill, in a conversation some months ago with PULP & PAPER editors, that a request was made to visit Brunswick and write it up. He promptly okayed the proposition—and here is PULP & PAPER's story.

• The stabilization of wood production as a regular occupation is the key to a successful wood procurement program pioneered in the Southeast by Brunswick Pulp & Paper Co.

Stabilized production (as contrasted to the "feast or famine" era of a past generation) is synonymous with regular work and regular income for an increasing number of independent small business men, loggers and their labor who produce and sell pulpwood to this 500-ton jointly-owned Scott-Mead mill on Georgia's Brunswick River below Sea Island. Brunswick has also materially reduced the number of its pulpwood shippers and increased the volume of its wood.

NO MIDDLE MAN—Convinced that a direct approach is the most effective, this Southern mill places no middleman (dealer or broker) between the company and its raw materials. All contact with timber farmers, independent loggers and the general public is through company-salaried employes, organized and trained with a team objective to:

ED GAYNER, President, Brunswick P & P—He's mighty pleased with new wood procurement policies.

1. Encourage production of pulpwood and other forest products as a stabilized occupation, contrasted to seasonal work dependent upon weather, varying logging conditions, farming or other outside influences.

2. Develop improved logging methods and equipment to increase the efficiency of timber harvesting every week throughout the year.

3. Educate and assist the small tree farmer who owns three-fourths of Southern forest acreage to sell his timber crop wisely, protect it from fire, and do all to insure a future of more trees and more plenty for more people in an expanding Southern economy keyed to Southern forest resources.

4. Make tree farming more profitable now by utilizing more fully existing products of today's forests. This is also a prerequisite for the establishment of a more vigorous future forest.

WHAT IS NEW ABOUT THIS PROGRAM?—These objectives are common to all pulp and paper mills. All would like a regular flow of wood into their mills, recognizing that efficiencies or inefficiencies in wood production are eventually translated into delivered wood cost and quality. Every mill seeks more efficient wood production methods. Because of wood deterioration in storage in the South, particu-

NEW METHODS ARE PAYING OFF. JOE TUCKER (left), who heads Wood Procurement, and LUCIAN WHITTLE (right), Mgr. of Brunswick's Woods Division, examine a report on advantages of direct wood purchasing.

CASE HISTORY OF IMPROVED MECHANIZATION. BILL FLOWERS, pulpwood producer shows RUDY WOODWARD, Wood Buyer, Brunswick P&P Co., load of wood on pallet awaiting truck shipment to mill.

larly, all Southern mills deplore wide fluctuations in pulpwood production. The difference at Brunswick is the method of doing the job.

Brunswick does not believe it can as effectively put its policies into practice, working through middlemen, as it can through its own salaried employes. Many a middleman wood dealer depends heavily on casual or market wood from seasonal wood cutters who are not equipped to log the more difficult-to-reach timber or who will not ship wood if the weather is bad or if competition for services makes some other field temporarily more attractive. Such loggers or wood producers cannot always afford to invest in equipment for stabilized (uniform) wood production. Not working regularly, they cannot attract, hold and train equipment operators and labor for required efficiency.

Dealing through its own salaried personnel, Brunswick, over a number of years, has attracted a group of wood shippers who know they will not be cut off if there is a period of oversupply in market wood. This has enabled such persons to develop small, independent logging businesses, to invest in more efficient logging equipment and to stabilize their labor in regular employment.

Fresh Wood is Like Today's Eggs

In line with Brunswick's striving for a record year in production, quality, and cost, here's how wood procurement fits into the picture in the eyes of Lucian A. Whittle, Woods Division manager.

It starts with a controlled yard inventory of fresh wood for a maximum yield. Several months ago, Brunswick's wood procurement division reduced average yard inventory to 8,500 units. This is believed the lowest of any mill in the South in terms of wood consumption. Mr. Whittle estimates 50% of the pulpwood arriving at the mill, like the "eggs you eat today are laid this morning" slogan, was standing as trees in the forest of South Georgia yesterday. The other 50% arrives by rail and generally is not more than a week from standing trees.

Fresh wood, of course, means less wood used per ton of pulp, and from pine, increased recovery of by-products (crude sulfate turpentine and crude tall oil). This 50% truck wood is in contrast to 7% in 1942 and 27% in 1946. Truck-delivered wood, says Mr. Whittle, is generally better prepared, yields more fiber and costs less to handle in the yard.

TRUCKERS HIGHLY PRODUCTIVE—In addition, Mr. Whittle adds, wood producers making truck-mill deliveries are generally more productive for a given number of workers than rail shippers. They are not annoyed by rail car shortages, delays at rail concentration yards, or periodic labor shortages to load cars. Maximum efficiency in unloading trucks is possible at the mill, the point of greatest wood concentration. All truck scale tickets are imprinted with arrival and departure time. Brunswick's objective is to release every pulpwood truck from its yard within 15 minutes of arrival.

The wood procurement division is making a special effort in 1955 to further improve wood quality by means of preparation. Wood consumption per ton of bleached sulfate pine pulp has reduced from 1.6 units in 1945 to less than 1.4 units today, says Mr. Whittle, with a corresponding decrease in woodyard inventory.

WHAT ARE BENEFITS?—To the mill and wood producers these include:

1. A marked improvement in wood quality that has continued over the years.

2. A constant decrease in per-cord cost of delivered wood.

3. Decreased wood usage with low yard inventory and consumption of fresh wood. Brunswick carries no wood in the field. Mill inventory varies between 10 and 15 days. No wood arriving at the mill is over 10 days old and more than 50% is less than 24 hours from the standing tree.

4. Stabilization of wood production has drastically reduced the number of shippers, increased average weekly shipment per logger and correspondingly increased logger profits.

5. Direct buying through mill-salaried employes eliminates misunderstandings, betters community and public relations and helps to keep Brunswick's finger on the public pulse.

Brunswick's direct wood-buying system is now returning multiple dividends annually to independent loggers, landowners and the company, says Lucian A. Whittle, Woods Division manager.

Independent wood producers work regularly, he says, and have stabilized their labor by improved training methods, including more mechanization, and as a result have sharply increased production per man-hour. Their labor and operators enjoy premium pay.

The producer is finding that pulpwood production as a regular occupation is a profitable line of work. Landowners are getting a premium timber cutting job. Hard-to-reach timber in less accessible locations is fully logged. Brunswick shippers can sell the company many species not otherwise marketable. Fresh wood, uniform deliveries, low yard inventory, good preparation combine to give Bruns-

How Hydro-Spring's "Shock Cushion" Helps Skid-Shovels outlast all others *by 25%*

"Hydro-Spring design not only increases production—it also decreases abuse to both machine and operator," reports H. C. Patty, Birmingham, Alabama, owner of this concrete-shattering outfit!

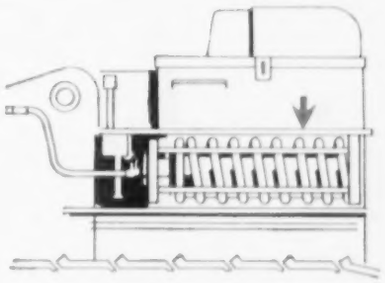
Slam this super-stout bucket into compacted material, and you generate impact stresses that make unprotected front-end loaders shudder!

But International Drott Skid-Shovels smother these shocks enroute, before they can sprain a sacroiliac, strain a track frame, or maim a final drive! Machine-mauling shock stresses "lean" against exclusive Hydro-Spring's "magic cushion"—and they're absorbed!

No Strain! No Pain!

You apply the patented pry-action break-out—and you get up to three times as much material-loosening, bucket-cramming force as the ordinary front-end loader can muster. Even then, shock-swallowing Hydro-Spring wards off strain and pain! *Owners declare that Hydro-Spring adds a whopping 25 per cent to loader and tractor life—reduces downtime and boosts production, too!*

No other front-end loader has Hydro-Spring advantages—which you get in four big-capacity, contractor-proved International Drott Skid-Shovel sizes. Why not ask your International Drott distributor for a demonstration of the money-making size best suited to your needs?



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Exclusive Hydro-Spring is a hydraulic cylinder enclosed in a heavy-duty coil spring. Shock force displaces oil from main lift cylinders into the Hydro-Spring cylinder—extending it and compressing the big spring to *absorb* and *cushion* impact loads. Hydro-Spring reduces the consequences of shock forces *by an actual 67 per cent or more*—also eliminates most hydraulic hose failures!

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LOOK at this job! Can you picture any other type of material handling equipment solving a problem like this? Mills all over the United States and Canada have found that Northwest Crawler Cranes have cut their costs and introduced a versatility for material handling problems they never had before.

Your Northwest goes anywhere! It unloads trains of pulp without an extra line of track. It will unload from the side or end — it will even travel over a line of flats on the cars themselves. It can work into a pile or back out of it making more storage space available without re-handling.

If not tied up in the Pulpyard it will take care of material handling jobs around the mill and it is easily converted to a dragline for drainage work or clean-out work.

If you are doing your own cutting you will find your Northwest is a proved Log Loader and with a heeling boom it gives you a machine that can handle loading to trucks or decking.

Now is the time to plan to modernize your yard equipment. If you are using old locomotive or steam machinery, you'll be surprised at how a Northwest will cut your costs. Ask for a catalog on the size you need. There is a size Northwest for every mill problem.

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MECHANIZATION BEGINS HERE with this Homelite chain saw used to fell trees.

STEP TWO IN MECHANIZATION is this D-2 Caterpillar used for yarding logs to bucking site.

BICYCLE TYPE POWER SAW BUCKS LOGS into 5 ft. 3 in. length and workers then load them onto the pallets awaiting truck shipment to Brunswick.

FULL CAPACITY LOADS ARE ASSURED by using this truck-mounted hoisting rig when pallet load gets too high for men.

wick low wood cost, improved mill yard efficiency, decreased wood usage and increased by-products yield, says Mr. Whittle.

HOW WOOD PROCUREMENT IS ORGANIZED—Joe Tucker heads up Brunswick's 12-man procurement team. J. B. Knox and Lindsay Brown each supervise three wood buyers. Each buyer operates in about a 40-mile radius area, with wood purchases generally limited to within 150 miles of the mill.

The wood buyers are Rudy Woodward, Henry Williams, Ike George, Jimmy Lambright, R. G. Douglas, C. J. Maloy.

Conservationists are Cliff Fisher and Don Lynch, with assisting timber cruisers and markers Roger Butler, Lenox Anderson, L. M. Sceals, Jr., and Earl Morris. Company auditor Charles Ratcliffe checks records of wood shippers for compliance with labor laws and other regulations.

Principal duties of the conservation foresters include a free service to small independent landowners to educate them in tree farming. Free seedlings, the development of forest management plans without charge or obligation, and instructions in timber marking are components of Brunswick's conservation program.

Many conservation foresters in the South are employed by wood dealers or middlemen. These men render a very worthwhile service. Brunswick does believe, however, that its own conservation foresters are in a position to give a particularly realistic service. They are all salaried company men trained to promote better forestry. If more income will result from marketing a tree as a pole or sawlog, then such advice is given landowners by Brunswick's conservation foresters.

4-PALLET CAPACITY TRAILER TRUCK BEING WEIGHED at millyard. It is owned by Al Wooten. Brunswick adopted weight system for pulpwood in Southeast, 12 years ago, and was one of first to find it advantageous.

NEW EQUIPMENT—NO COST TO LOGGER—Mechanization at Brunswick is headed by a mechanization committee composed of Mr. Whittle, a wood buyer, a forest supervisor, the mill yard superintendent, the mill methods engineer, a cost accountant and logging engineer, M. J. Stankiewicz.

BRUNSWICK'S MECHANIZATION PROGRAM HELPS smaller operators such as this one using experimental Hiabob truck loader. Unit is particularly useful in one-man operations and in loading railcars at small railheads.

AN EXPERIMENT BEING TRIED by pulpwood producer, AL WOOTEN, to load wood and shuttle pallets from bucking site along improvised road to trailer on more accessible roads. This is a fork-lift unit mounted on rear of old truck.

This group meets regularly to sift and analyze changes in logging equipment and methods as they are developed by Brunswick's men or others. When their combined decision is to introduce a new piece of equipment, or method, the logging engineer carries it to the operation of some independent logger shipping wood to Brunswick.

If experimental equipment is involved, it is placed on this operation temporarily without cost to the logger. If it proves impractical, it is removed without cost to the logger. If he is satisfied it will make money for him, he is allowed to buy it.

In this way Brunswick bears the risk of introducing untried methods or equipment to the loggers in their area. They believe this is a proper function of the mill.

The latest experimental unit at time of PULP & PAPER's visit was a mechanical truck loader mounted on the cab of a truck. It is a Hiabob unit imported from Sweden.

Brunswick has approximately 100 regular shippers located within 3 truck and 3 rail areas. The longest rail haul on pine is 135 miles; hardwood, 180 miles. Longest truck haul is 75 miles.

Pallets, an original development by Brunswick to handle pulpwood, are used extensively in the truck areas, and first described in an exclusive PULP & PAPER feature some years ago.

Large trucks with 3-pallet capacity, and trailers with 4 and 5-pallet capacity are used on longer hauls. These independent pulpwood loggers report an average equipment investment ranging from $5,000 to $20,000, with a $12,000 average.

A TYPICAL OPERATION DESCRIBED—A typical producer's operation was seen by PULP & PAPER editor on tour with Rudy Woodward, wood buyer. Mr. Woodward has been with Brunswick three years and says his hobby is his job. In 1954, Mr. Woodward purchased approximately 60,000 cords of pulpwood from independent business men—loggers in his truck area.

Bill Flowers is a typical Brunswick producer. He has sold his pulpwood to Brunswick for 8 years. In that period, he has invested approximately $50,000 in equipment. In 1954, he purchased a 3½-ton International truck, equipped with a Dixie Pallet System, a D-2 Caterpillar tractor and allied equipment for a total cost of around $13,000.

Mr. Flowers and his six-man crew were cutting on a burn some 35 miles east of Brunswick. This particular cut was being made as a neighborly gesture by Brunswick to help a landowner salvage wood ravaged by a forest fire over about 2,400 acres.

PULP & PAPER saw a sharp contrast in mechanization between Mr. Flowers' operations and those of other operators not shipping Brunswick. With limited mechanization, they were working visibly harder and just as visibly accomplishing less.

In Mr. Flowers' operation, one man felled trees and trimmed them with a Homelite power saw. Mr. Flowers, mounted on a D-2 "Cat," yarded three trees at a time. Another worker bucked the trees, using a wheel-type power saw made by Tidewater Equipment Co. of Brunswick, Ga. Two men loaded pallets while the 3-pallet International truck was pulling a load to the mill. It took about 10 minutes to load the truck. Pallets, says Mr. Flowers, have increased the efficiency of his operation 50%.

The pallet system, early outgrowth of Brunswick's program, is now widely used throughout the South and rapidly spreading.

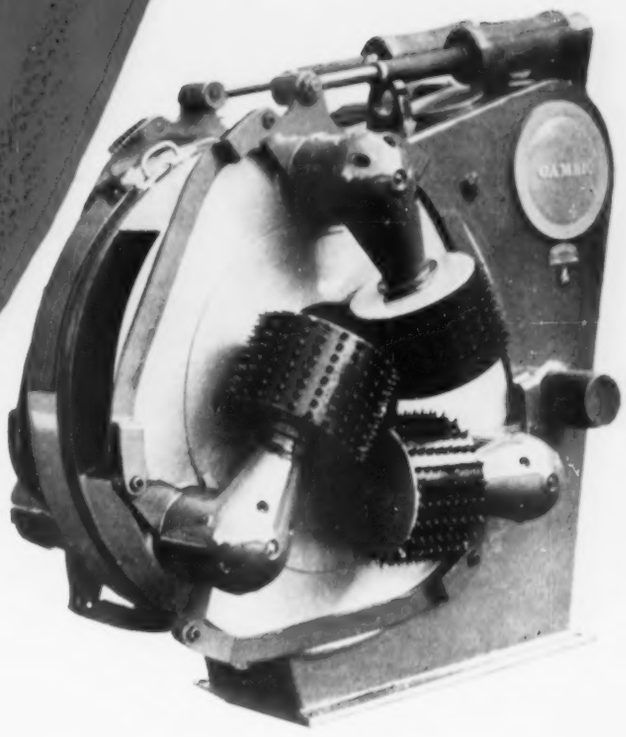
ANOTHER PRODUCER TELLS HIS STORY—Al Wooten is a new Brunswick producer. A former sawmill operator, he decided to get into pulpwood because of good reports about the profitable operation of loggers shipping pulpwood to Brunswick. Although Brunswick already had adequate suppliers, they liked this man and his reputation.

Mr. Wooten's equipment includes a McCulloch chain saw, a D-4 tractor, a truck-mounted hoisting rig, a 4-pallet capacity trailer and an experimental fork-lift attachment developed by West Virginia Pulp & Paper Co., mounted on a truck. This latter unit shuttles pallets from the bucking site to haul roads, which the truck-trailer can navigate.

PULP & PAPER drew Mr. Wooten aside to get a frank statement as to what he really thought of Brunswick's system. "I like it," he enthusiastically replied, "I have a steady market. In doing business with people who encourage me to get better equipment to do a better job, I make more money. The mill gets quality wood for less. I offer my men regular employment. I pay my bills promptly. My employes profit. I profit. The landowner profits. The mill profits."

HAVEN'T LOST A PRODUCER YET—"A direct wood-buying system

Our New CAMBIO Barker



In our revolutionary new CAMBIO Barker, we present the world's first fully automatic barker which barks logs down to 3' in length. This latest addition to our complete line of Soderhamn wood waste utilization and gang saw equipment has been thoroughly field tested under widely varying conditions. Its performance has proved outstanding.

Other Soderhamn Equipment Includes:

Soderhamn D-3 Barker; Anderson-Clark Heavy Duty Barker with straight or pivoted toolarms; HF-60 and HF-30 Slab Chippers; Soderhamn Chip Screens CS-90C or CS-35; Soderhamn's "Dixie" Gang Saw.

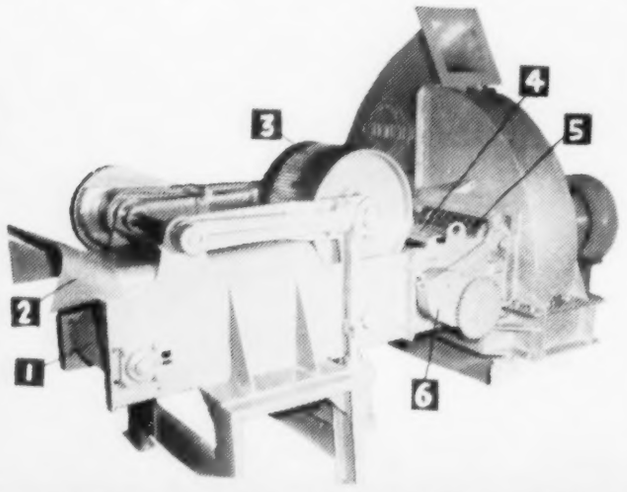
We invite you to send for further information on Soderhamn equipment—today.

SODERHAMN MACHINE MANUFACTURING CO.

SODERHAMN, SWEDEN SINCE 1864 TALLADEGA, ALABAMA

CANADIAN REPRESENTATIVES: East Coast: Forano Limited, Montreal, Canada

TO WORK FOR YOU!



SUMNER'S MODERN VERTICAL-CUT VENEER CHIPPER INSURES PEAK PRODUCTION OF TOP QUALITY CHIPS FROM VENEER REJECTS

✓ *Check these outstanding features*

1. SIMPLE, HORIZONTAL, BELT IN-FEED CONVEYING SYSTEM carries the veneer well up into the chipper spout.

2. FUNNELED HOOD with large flared opening folds down the "fish-tails" and sheets riding high on the conveyor sides, eliminating stoppages and directing the material beneath the powered crush roll.

3. POWERED CRUSH ROLL crushes the stock down for orderly in-feed.

4. SPECIAL HOLD-DOWN FINGERS hold the veneer in ideal cutting position until the "last end" of each piece of veneer is properly chipped. This feature eliminates up-ending and further increases uniform quality formerly lost in oversized chips.

5. POWER-TOOTHED IN-FEED ROLL located close to the chipper disc insures positive feed for maximum output of uniform chips.

6. COMPLETELY ENCASED, LARGE DIAMETER, HEAVY PITCH SPROCKETS which run at low speeds, give long chain life and easy maintenance.

ANTI-FRICTION, SELF-ALIGNING BEARINGS throughout . . . a further insurance for efficient operation.

LARGE SPOUT OPENING provides maximum cutting surface and large in-feed capacity.

THE SUMNER "72" has a 24" spout opening and a full 24" anvil.

THE SUMNER "66" has a 19" spout opening and a full 19" anvil.

AVAILABLE in either bottom or overhead discharge.

YOU JUDGE these features known only to a "Sumner" and let us provide you with further details which substantiate our claim that no other veneer chipper will give greater service and volume production of uniform chips.

Designers and Builders of Quality Machinery for the Forest Products Industries

ESTABLISHED 1892

SUMNER IRON WORKS

EVERETT, WASHINGTON

In Canada: Canadian Sumner Iron Works, Ltd., Vancouver, Canada

has worked out very well for Brunswick," Mr. Whittle told PULP & PAPER.

However, he makes no recommendation for or against this system for other Southern mills. There are too many variables in pulpwood, just as there are in other phases of pulp and paper making, for any one system to be advanced as the best system for all mills, he says.

"However," he added, "the greatest obstacle to increasing the efficiency of a wood procurement system, or any other enterprise, is the habit of doing something one way and a reluctance to change." He said he is a disciple of the familiar quotation, "Anything that has been done one way for two years should be carefully re-examined; after five years, suspect; and seven years discarded."

MORE UTILIZATION IS "A MUST"

—Mr. Whittle has definite ideas on a more complete utilization of existing forest cover as a first step to profitable land ownership and management. "This matter of complete utilization of existing forest cover," he says, "is a vital factor in the continued expansion of all wood consuming industries, and a "must" if our forests are to meet foreseeable demand.

"With salaried employes dealing daily with persons cutting wood and landowners growing timber, we feel we are in a favored position to keep our technical and research men at the mill abreast of the mechanics in profitable forest management and to keep the landowners and wood producers better informed of changing mill requirements.

"There is a growing interdependence between complete utilization of forest productivity, every forest acre working, and profitable mill operation. Nothing is static. New techniques in forest management and timber harvesting must go hand in hand with the expansion of the pulp and paper industry.

"Chemists, technicians, research men, economists, market analysts, mill operators, etc. must be keenly aware of everything that is happening in forest management and in wood production. By the same token, wood procurement and forest management must more fully share the responsibilities of those who utilize the products of the forest.

"Long range, we believe, as far as our operation is concerned, that we can do this job better through salaried woods division employes, whose future is inescapably tied to the competitive progress of our company."

Horizontal Feed Chipper in Western Mill

Hansel Engineering Co., Inc., of Seattle and Vancouver, B. C., reports that its first new 112 in. horizontal feed whole log chipper is being installed in a western pulp mill, along with a 2-arm hydraulic barker. This type barker has been used successfully in Pacific Northwest sawmills but this is first use by a pulp mill.

The chipper is designed to take 40-ft. logs up to 24 in. in diameter at the rate of 166 lineal fpm, making 38 in. chips. It has eight knives and employs a downward discharge. The barker is mounted inside the wood room across a conveyor; no operator is required.

WORTH WATCHING. This Watkins Debarker holds promise of becoming one of first mechanical slab and edging debarkers to meet with success in the South, according to reports from the American Pulpwood Assn.

New Slab Debarker Being Used in South

The successful development of the Watkins' slab debarker holds promise of becoming one of the first mechanical slab and edging debarkers to meet with success in the South, according to a recent report from American Pulpwood Assn.

N. F. Watkins of Sumter Mfg. Co., York, Ala., is said to be successfully operating a chip concentration yard converting rough pine slabs and edgings to high quality pulp chips. This is reported to be the second Southern operation of its kind devoted to buying, debarking and chipping rough slabs and edgings coming from small portable and semi-portable sawmills.

The debarker, manufactured under contract by Jones & Co., Birmingham, Ala., removes bark not only from slabs but also edgings by rotary chain debarking heads.

Ask for release No. 238 from the APA at 220 E. 42 St., N. Y. C. 17.

Changes in Federal Forester Personnel

U. S. Department of Agriculture has reassigned several Federal foresters, following appointment of Earl W. Loveridge, former assistant FS chief as agricultural attache in Colombia.

Clare W. Hendee, regional forester for California, succeeds Mr. Loveridge.

Charles A. Connaughton, regional forester for the Southern Region, Atlanta, succeeds Mr. Hendee in San Francisco.

C. Otto Lindh, Albuquerque, N. M., regional forester for the Southwestern Region, succeeds Mr. Connaughton in Atlanta.

Fred H. Kennedy, Denver, chief of division range management in the Rocky Mt. Region, succeeds Mr. Lindh in the Southwest.

NORTHWEST CRANE SPEEDS WORK. With cable slings, it is one of reasons truck waiting time at Brunswick's woodyard averages 15 minutes. Mill operates at minimum inventory of 10 to 15 days' supply. Steady, year-round flow from regular suppliers provides level flow; prevents seasonal build-ups of shipments with subsequent long waiting lines often seen in other mills.

On the Lookout in the Woods

(Left) JAMES DeLANEY of Potlatch Forests spots aircraft, using Air Force map, while BOB TONDEVOLD, in radio-equipped pickup truck, calls in location to headquarters. (Center) Location of aircraft is called in with hand-carried transmitter by Mr. Tondevold, Potlatch trainmaster. (Right From tower atop Bald Mountain, Mr. Tondevold and FORREST VAUGHN survey typical terrain which offers "radar shadows" and potential invasion path to the enemy.

Messages Go to Headquarters

(Left) GEORGE CRYSTAL, Potlatch Forests engineer, calls in to headquarters from cab of diesel-electric logging locomotive. (Center) Operator at Lewiston relays exact wording of message from the man in the woods to Spokane Filter Center. (Right) At Headquarters, Idaho, operator receives call from ground observer at her radio switchboard.

Potlatch Radio Aids U.S. Air Defense

● A gap in U. S. radar defenses extending across 7,000 square miles of northern Idaho has been filled in by the short wave radio system of Potlatch Forests, Inc., which has a pulp and paper mill at Lewiston, Idaho, and integrated lumber and plywood operations.

The company recently became a member of the Ground Observer Corps, the volunteer civilian group which mans observation posts in the country's "Operation Skywatch." The move follows a training period during which Air Force crews visited every PFI logging camp and administrative center to school radio operators, loggers, foremen, clerks, train crews and foresters in Air Force radio procedure, aircraft spotting and map reading.

As a result, in the event of invasion a message similar to this would begin somewhere deep in the mountainous forests of northern Idaho:

"Aircraft flash! Aircraft flash! A few multi-jet aircraft are flying low, heading due south. This is Echo Bravo 0943. Echo Bravo 0943 . . ."

It would be a PFI employe, using the radio in a logging camp, a diesel-electric locomotive, a pickup truck or the hand-carried, battery-operated transmitter of foresters and fire crews.

The call would be picked up at Headquarters, Idaho, by Operator Cora Todd, and relayed to the company's radio central switchboard at Lewiston. There, Operator Bernice Koefelda would transfer it by special telephone, using the exact wording of the man in the woods, to the Spokane Filter Center of the 25th Air Defense Command.

At the filter center civilian volunteers would plot the flight on a board divided into squares, or grids. Radar would be notified instantly, and rocket-armed F-94 and F-86D jet interceptors would begin taking off from nearby Geiger Air Force Base, on a mission to search for, identify and shoot down the invaders.

Total elapsed time: Not more than 4 minutes, from the time the logger

Handling Pulpwood and Lumber With Diesel Efficiency

WRITES OFF COST IN A FEW SHORT YEARS!!

Industry's most-efficient crane, an American DiesElectric Locomotive Crane, can write off its full cost in a few years, according to operating records. Equipped with a grapple, above, a 40-ton American DiesElectric speedily unloads a railroad car and stockpiles pulpwood. The elevated cab set to the side of a boom lets the operator see deep into the car and gives him full vision for high piling of bulky loads. Fast, smooth swings made possible by American's tandem-band swing clutches mean more cycles per hour.

A controlled-tension dual tagline enables the operator to position the grapple swiftly and gives him full control for neat, accurate stockpiling. With electric power to the trucks and direct-diesel power to the deck, American Cranes provide smooth, flexible operation at low cost. Fuel costs of slightly over a dollar a day are reported from many jobs. Get the full facts on how American DiesElectric Locomotive Cranes can put diesel efficiency to work for you. Write American Hoist & Derrick Co., St. Paul 1, Minnesota.

600-5-27

Logging Trains Aid Defense

Diesel-electric log train of Potlatch Forests rounds curve in mountainous pine country of northern Idaho. All trains are radio-equipped, brakemen at rear having portable battery transmitters to communicate with engineer.

spotted the invaders until U. S. interceptors were in the air.

VITAL BLIND SPOT FILLED IN—In becoming a member of the Ground Observer Corps, the company fills in not only in a place where rugged mountains such as the Bitterroots create radar "shadows," but in an area so sparsely populated it is virtually impossible to set up year-round observation posts. Year-round logging operations, closely tied together by a well developed radio network, fulfill the need for surveillance.

The blind spot was a matter of concern for the Air Force. Capt. Stephen F. Mason, commander of the Spokane center, said:

"In making their VHF (Very High Frequency) radio system available, Potlatch Forests has taken a big worry off our minds. One of our major needs is to have posts manned on a 24-hour basis, especially in the mountains.

"The GOC is one of our three important Air Defense teams, as important as radar and interceptors. There is reason to believe the enemy, in high speed jets equipped with jamming devices, could even blank out our radar. If that happened, we would have to rely entirely on the GOC."

The loggers who volunteered their service are enthusiastic about the job they are doing, according to Bob Olin, mechanical superintendent of the woods.

"The latent, patriotic enthusiasm evidenced by these silent, hard-working loggers showed up in their eagerness to learn operating details," said Mr. Olin. "All of them are volunteers. They are proud to be assisting in plugging the gaps in our civil defense."

Mr. Olin is a founder of the National Forest Industries Communications, which cooperates with the Federal Communications Commission in radio matters. He is national chairman and Western regional chairman of the group, which has been instrumental in promoting the use of industry radio in civil defense.

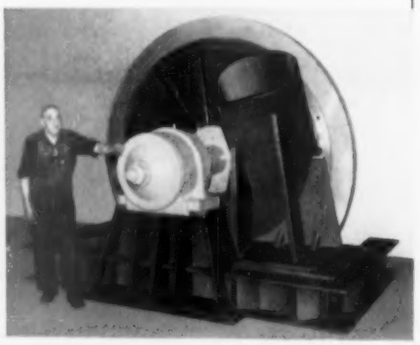
HAS "AIR ARM" TOO—Potlatch is unique in that it has, in addition to the 25 mobile transmitters on the ground, an "air arm." The company plane, a twin-engine Lockheed Lodestar, is equipped with VHF radio which connects it with the company network, providing aerial as well as ground coverage.

Potlatch set up its radio system in 1948. It has mobile transmitters in locomotives that run along company tracks, in pickups that operate on company roads, at logging camps and in log loading cranes. Foresters, fire fighters and trainmen are also equipped with hand-carried transmitters that can be taken deep into the woods. This provides a radio network in the 7,000 square miles of company operating area, which is in the direct path of a potential invasion from the north.

Convert Logs into
HIGH-QUALITY CHIPS
with Carthage Log Barkers, Log Splitters, Log Chippers, Slab Chippers, Chip Screens

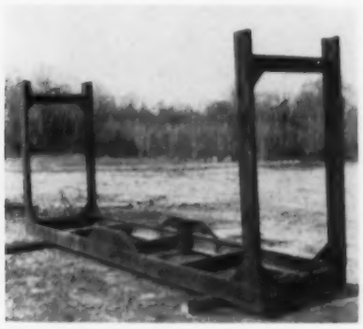
For Example:

CARTHAGE NORMAN CHIPPER produces smooth, uniform chips—clean cut and low in sawdust. Multiple-knife design results in steady pressure on the log—prevents chattering. Heavy-duty construction—low maintenance costs. Also Carthage Standard Chippers.



Write for Complete Information

CARTHAGE MACHINE COMPANY CARTHAGE, NEW YORK
West Coast: Ray Smythe, 501 Park Bldg., Portland 5, Ore.



MORE ACCURATE SCALING, greater efficiency in handling of truckloads by mechanical loaders, better public relations and safer operations of pulpwood trucks are some of advantages contingent with use of these standard size pulpwood frame, according to a report from American Pulpwood Assn.

New Pulpwood Frames Do Good Job in South

Ardie Toler, wood procurement supt., International Paper Co., Mobile, Ala., has a program for purchasing standard size pulpwood frames calculated to effect better public relations and safer operations of pulpwood equipment.

The frames also provide more accurate scaling and more efficient handling of truckloads by mechanical loaders. The steel frames are available in lots of 12, from Central Fabricators of Meridian, Miss., at $88 each, fob, Meridian.

Further information is contained in Equipment Handbook release No. 236, available from the American Pulpwood Assn., 220 E. 42 St., N. Y. C. 17.

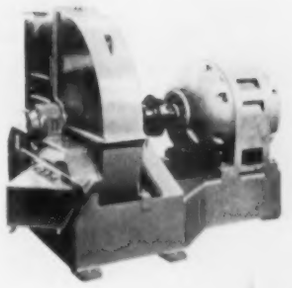
PULPWOOD PERSONALS

ROBERT A. (Bob) MACDONALD, Electric Steel Foundry Co.'s logging and wire rope division manager, died recently at his Seaside, Ore., home. One of the best known men among woodsmen, he was 65. He was born at Portland, Ore. . . . **WILLIAM W. HUBER,** who has been on the staff of the regional forester of the Pacific Northwest Region of USFS during the past 5 years, has been named director of the Smokey Bear Forest Fire Prevention Campaign. He succeeds **CLINT DAVIS,** recently named head of the Forest Service Division of Information and Education. . . . **M. B. GARBER** and **E. C. BREKELBAUM** have been elected vice presidents of Thew Shovel Co., Lorain, O., according to **C. B. SMYTHE,** president. Mr. Smythe was also elected treasurer and will carry title of president-treasurer. . . . **W. DONALD BENNETT** is new forester and logging engineer of the woodlands research division of Canada's Pulp and Paper Research Institute. He was former woodlands supt. at Spruce Falls Power & Paper Co. . . . **HARRY L. BEACH** succeeds **ROBERT R. DRUMMOND** as general manager of the woods department of Oxford Paper Co., with headquarters in Rumford, Me. He joined Oxford in 1923 as an employee of the Nashwaak Pulp and Paper Co. Mr. Drummond has held his post of general manager of woods dept. for 15 years, having been with Oxford 33 years. He will remain as advisor to the woods dept.

HELEN L. KOHLER, assistant treasurer, American Pulpwood Assn., recently vacationed in Europe, visiting Holland, Norway, Sweden, Germany, Denmark, Austria, Switzerland, Italy and England.

South Eyes Pneumatic Tires

Trial of pneumatic tires on Budd 15 x 25 wheels on an Athey arch for wet weather logging has brought Southern Lumber Co., Warren, Ark., to a decision to try a slightly smaller dual wheel installation for increased flotation. The company, noted for its progressive attitude toward modern mechanization, was faced with need of rebuilding its Athey tracks after two years' use. It substituted Goodrich tires and wheels at about same cost. It found tires of less flotation ability than the superseded tracks; plans to try for a greater spread. There is widespread interest in pulpwood circles in the South in pneumatic tire installations, particularly where soil is abrasive. In bottomland Arkansas, if the wheel "breaks through," a strenuous effort is required to free it. Note safety canopy and brush and/or log guard screen for the Caterpillar D-6 operation, and its Hyster winch.



HANSEL
112-in., 8-knife
HORIZONTAL FEED
24" whole log
chipper for
HIGH PRODUCTION

Soon to be running in a large northwest pulp mill

- Uniformity of chips
- Economy of installation
- Rugged construction
- High disc WK^2
- Horizontal feed or drop feed
- Overhead discharge if required
- Left-hand or right-hand rotation
- Direct drive or belt drive

Also, waste wood chippers operating in Eastern, Southern and Pacific Northwest states.

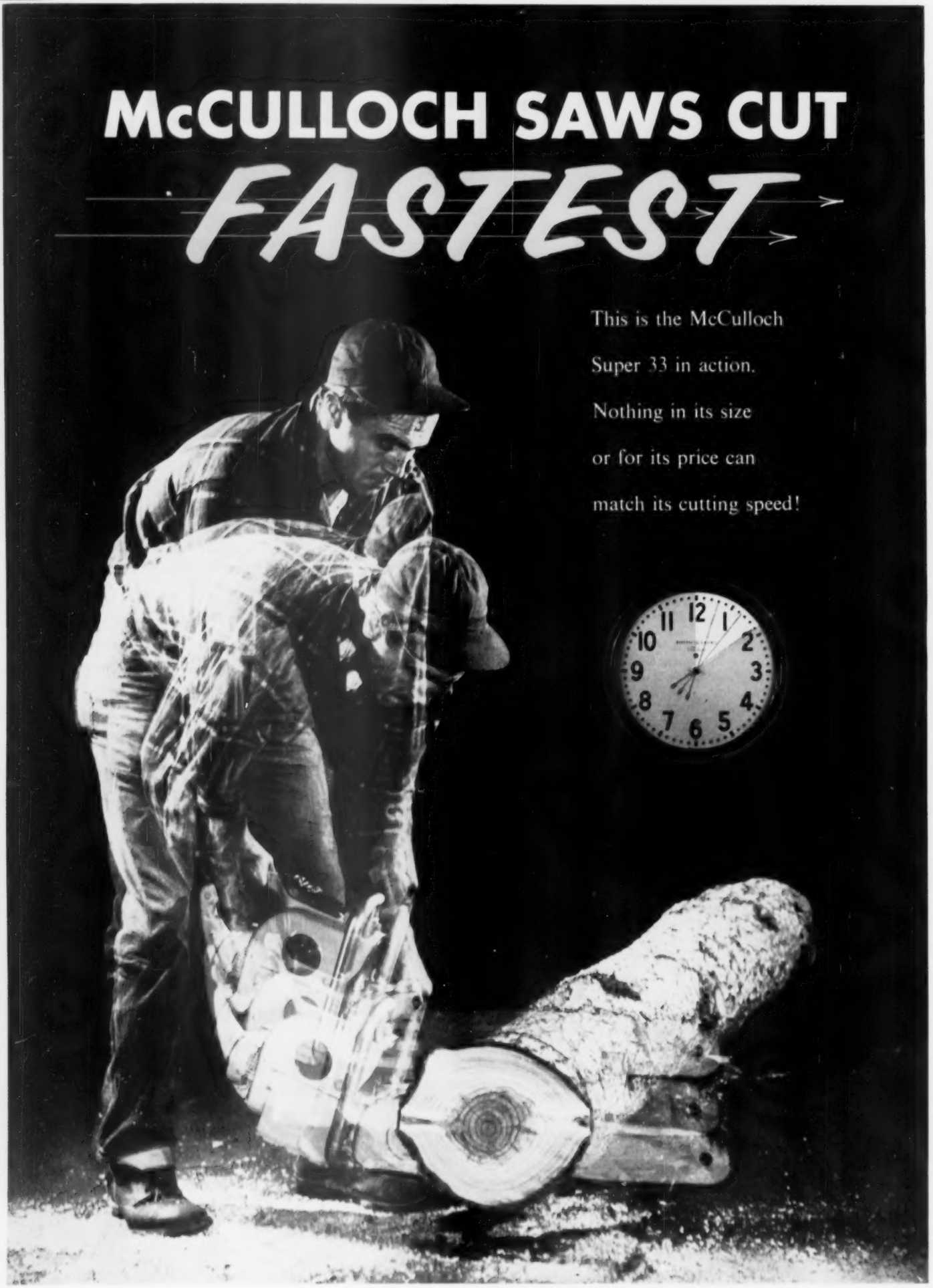
HANSEL
ENGINEERING CO., Inc.

1500 Westlake Avenue North, Seattle 9, Washington GArfield 2233

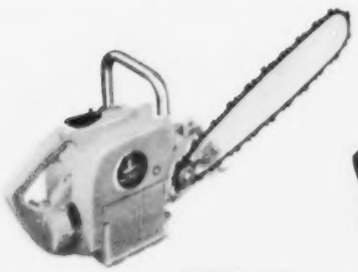
175 East Broadway, Vancouver 10, B. C. EMerald 9913

McCULLOCH SAWS CUT *FASTEST*

This is the McCulloch
Super 33 in action.
Nothing in its size
or for its price can
match its cutting speed!

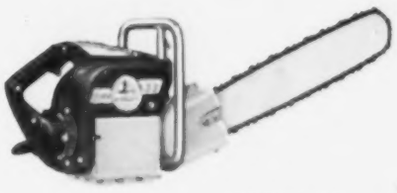


McCULLOCH OFFERS COMPLETEST CHOICE OF SIZE OR POWER, WEIGHT OR PRICE



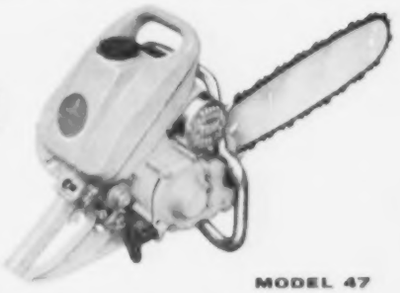
MODEL 33

Lightest weight, 20 pounds complete; lowest price, a real buy at $195 up.



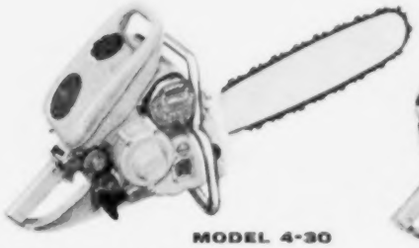
SUPER 33

Most powerful of all saws in its weight class, only 22 pounds. $237.50 up.



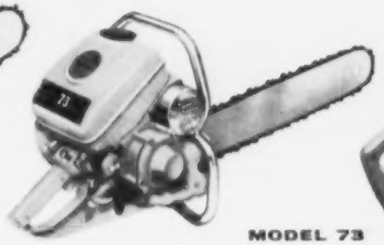
MODEL 47

A dependable and rugged performer weighing only 30 pounds, $279.50 up.



MODEL 4-30

This is a powerful, well-balanced, lightweight saw, priced at only $315 up.

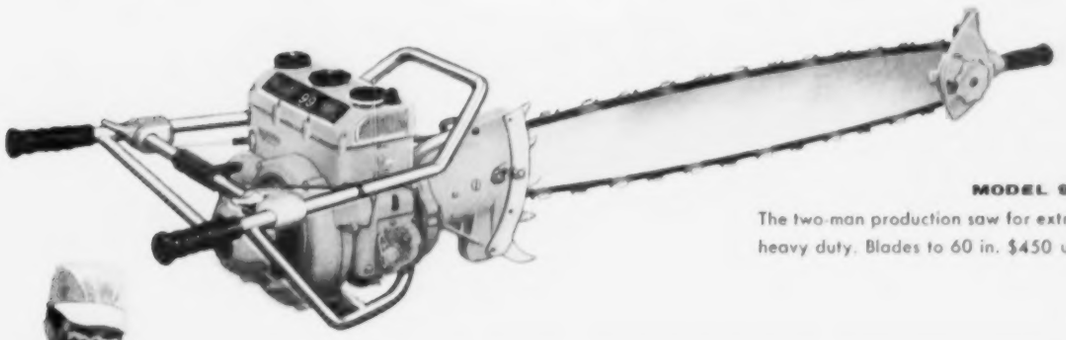


MODEL 73

Fastest-cutting 1-man saw; top professional favorite; weighs 31 lb. $365 up.

PLUNGE BOW MODELS

Cut with the tip, save labor in pulp logging. Bow saws in all models, $249 up.



MODEL 99

The two-man production saw for extra-heavy duty. Blades to 60 in. $450 up.

We invite YOU to test McCulloch cutting speed

Use a McCulloch demonstrator saw at your nearby dealer's to make a cut through a log of the size and type you'd normally be cutting. Check how long the cut takes.

Then make a similar cut through the same size and type of log with any other make of saw in the same range of weight or price, and check the time.

Pound for pound, and dollar for dollar, McCulloch saws outperform all other saws. They are your best dollar value. Write for free literature to McCulloch Motors Corporation, Los Angeles 45, California.

McCULLOCH

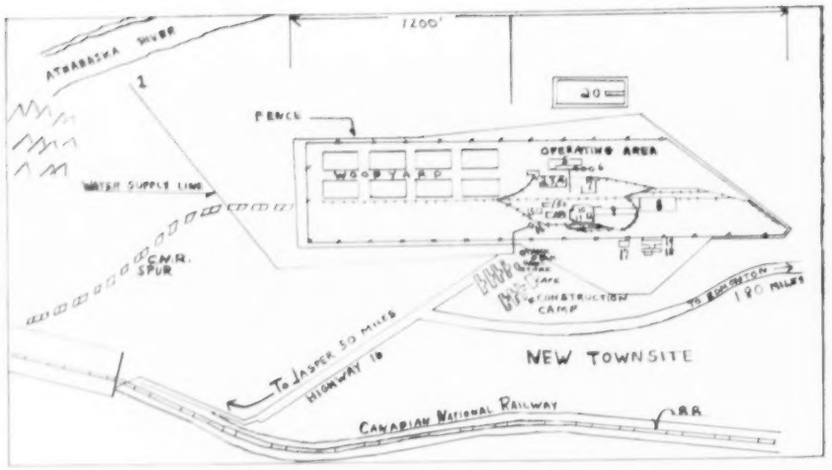
World's largest chain saw builder

McCULLOCH

S-5004

First Published Drawing of New Market Pulp Mill in Aberta

Big event in Alberta history is building of this new 400-ton North Western Pulp & Power Ltd. mill (St. Regis and North Canadian Oils, joint owners) at Hinton, 50 miles northeast of Jasper on the Athabasca River. Backed by 6,000 sq. mi. of wood, under lease or option, there is sufficient timber to double its size. Two 200-ton Kamyr continuous digesters, Kamyr upflow type bleaching towers, a 6-stage bleach plant with two chlorine dioxide stages will feature the mill. A 450-ton Dominion Engineering Fourdrinier and Minton dryer, 200,000 pph Combustion Engineering recovery boiler, two Carthage Norman chippers with curved blades, big drum barkers, two 175,000 pph power boilers burning natural gas and bark, 4 3-yd. woodyard cranes will be among major units.



1. Pumping station
2. Filter
3. Lime kiln
4. Recausticizing
5. Water treatment
6. Chip silos
7. Recovery
8. Warehouse
9. Machine room
10. Brown stock washing
11. Bleach plant
12. Digesters
13. Raw mat. warehouse
14. Repair shop & stores
15. Truck garage
16. Fire tank
17. Clinic & time office
18. Main office
19. Woodlands office
20. Effluent retention

Still Talking about Historic Pulp Tour

Still discussing the historic tour of the Association of Pulp Consumers to market pulp mills of Washington state and British Columbia and the new mill being built in Alberta were many executives of the pulp-buying companies of East and Midwest as well as the pulp producers.

Owners and top executives of 30 companies with mills dependent on market pulp, many with their wives, made the tour. Over 100 other non-integrated Eastern and Midwest mills belonging to the same association, were as intimately involved in the event, although they had no representatives on the trip. They all were able, vicariously, to enjoy it—to learn what is new and what is planned at the various Western pulp mills by reading the 10-page report in last month's PULP & PAPER (Oct. issue, page 71). Over 60 pictures by a PULP & PAPER editor, who made the eventful tour, illustrated the article.

A few pictures that couldn't be used last month are shown here—plus the only drawing yet published of the new St. Regis Hi-Brite bleached market kraft pulp producing mill at Hinton, Alta., jointly owned by St. Regis and North Canadian Oils. This mill will be shipping pulp around the world, probably by April 1957.

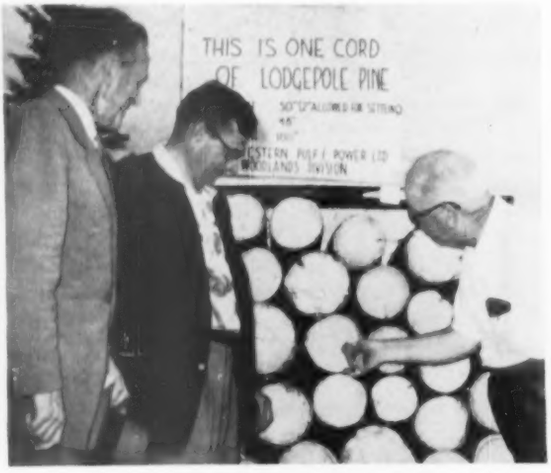
A modern mill town of 5,000 inhabitants is also rising at the site, where a railroad whistle stop of only 80 people formerly existed. Some 20 St. Regis executives or staff men—many from New York, and others on the job at Hinton—greeted the visitors.

The forests seen by Consumers were especially healthy appearing. Black bear, moose, elk, caribou and other game are still quite plentiful and bear and moose were seen by Consumers' or St. Regis groups accompanied by PULP & PAPER's editor. One big pine stand along the Jasper-Hinton road had much sand imbedded in its bark; spoiled for lumber, but okay for pulp.

Weyerhaeuser, Scott Paper, MacMillan & Bloedel, Powell River, Puget Pulp and Howe Sound mills and their

When They Got Together There Was Plenty of Action

ROY FERGUSON (left), President of St. Regis, and FRANK E. RUBEN (right), President of North Canadian Oils, Calgary, Alta., are founders of the first great pulp industry for Alberta—North Western Pulp & Power Ltd., Hinton. This is first picture presented in this industry of Mr. Ruben, former Los Angeles real estate man, who became a prominent figure in California and, recently, Alberta oil business. He got option on Alberta timber—enough for twice as big a mill as is being built—renewed it each year, as he tried to interest Canadian and then, American, pulp and paper companies. When he met Mr. Ferguson in Apr. 1954, it took only two months to complete their deal, each company putting up $5,000,000 toward the $33,000,000 project. Mr. Ferguson is President of NWP&P, Mr. Ruben is chairman of the board.



Fine Fibers for Fine Pulp

RALPH POWERS (left), President of Robertson Paper Box Co., and TED M. GILBERT (center), President of Gilbert Paper Co., hear about the fine narrow fibers that will go into St. Regis Hi-Brite pulp to be made at Hinton, from Vice Pres. and Chief Engr. JUSTIN McCARTHY of St. Regis. Woodpile—one cord—is at Hinton.

Guests of St. Regis on Puget Sound Cruise

One of highlights of recent 10-day tour of West Coast pulp mills by presidents, vice presidents, owners and other executives of about 30 Eastern and Midwest paper companies was this cruise. Wives joined in mill tours with enthusiasm, climbing up and down walkways of digester houses, bleach plants, etc. They took part in all events at nine Puget Sound and British Columbia mills visited, as well as at St. Regis' new mill site in Hinton, Alberta.

LADIES FIRST (left to right): JANE ULREY, Secy. to Reed Porter, Consumers' Secy-Treas.; MRS. REED (Rose) PORTER; MRS. ROY (Wilma) NEUBRECH (U.S. Dept. of Commerce); MRS. BILL (Marian) McVICKER (Chillicothe Paper); MRS. PETE (Lorelda) DAVERIN (Rising Paper); MRS. DALLAM (Ruth) BLANDY (American Wood Board); MRS. WILLIAM (Barbara) GILBERT (Gilbert Paper); MRS. HARLEY (Billie) BARNEY (Fox River Paper); MRS. ALBERT W. (Jessie) WILSON (PULP & PAPER); MRS. R. A. (Kay) POWERS (Robertson Paper Box); MRS. GEORGE (Helen) BROMBACHER JR. (Mead Corp.); MRS. DAVID (Ruth) KIMBALL (Robertson Paper Box); MRS. TED (Ellen) SUTHERLAND (Thilmany P & P); MRS. WILLIAM (Fritzie) BECKETT (Beckett Paper); MRS. ROY (Laura) SARGENT (C. H. Dexter & Sons).

Then men in picture, from left: W. E. (PETE) DAVERIN, V. P. and Treas., Rising Paper Co.; JACK LAMB, Resident Mgr., St. Regis, Tacoma; JOHN WALDEN, Purch. Agent, Standard Paper Mfg.; BILL CROSBY, St. Regis Pulp Sales, New York; WILLIAM McNAIR, St. Regis Pulp Sales, Cincinnati; MARK HOLLINGSWORTH, V.P., Hollingsworth & Vose, and DALLAM BLANDY, V.P., American Wood Board Co.

executives royally entertained the visitors on a tour which will go far to advance closer relations between these producers and the consumers. It is also expected to strengthen the Consumers Association to a great degree. Founded in 1941, it ties together some 230 mills.

Sorry, Sutherlands

Inadvertently, the names of Ted Sutherland, secretary-treasurer of Thilmany Pulp & Paper Co., and his wife, Ellen, were dropped from the list of the Pulp Consumers Tour party to Far West mills on page 77 of the October issue. They joined the train as it passed through Wisconsin, and remained through the entire journey of some 5,000 miles.

Rayonier Promotes Winston Scott

Winston Scott has been named resident manager of Shelton Division of Rayonier Inc., according to R. F. Erickson, vice president in charge of manufacturing. Mr. Scott replaces George Cropper, who is taking an extended leave of absence for reasons of health.

Following graduation from the U. of Washington in 1930, Mr. Scott joined Rayonier as a chemist. He was promoted to assistant chief chemist in 1935, chief chemist in 1937 and in 1946 he was made assistant resident manager.

WINSTON SCOTT, recently promoted to Resident Manager, Rayonier, at Shelton, Wash. He had long been Asst. Res. Mgr.

Cost of Living For Alaska Workers

Rice Barton Corp.'s "High Road" carries some figures, verified by Chief Engineer Harold D. Cavin of Ketchikan Pulp Co., on the cost of living as it affects pulp mill workers in Alaska. These are of interest, as plans for two more Alaska mills are under way:

Milk, 32 cents a quart; bread, 26 cents a loaf; oil for heating a 2-bedroom house, $22 per month average; a new apartment rental—modern, 1 bedroom, electric range and refrigerator, $125 per month. These prices, he said, would be typical in the entire National Forest area.

Haynes and Others Promoted in Southern Kraft

Erling Riis, International Paper Co. v. p. and general manager of its Southern Kraft Division, has announced promotion of Chatten R. Haynes to be new assistant coordinator of pulp mills, with offices in Mobile, Ala., divisional headquarters. Coordinator of pulp mills is Ike East.

Two mill managerships have changed as a result. Harry A. Rogers has succeeded Mr. Haynes as manager at Moss Point, Miss., and Arthur F. Perkins steps into Mr. Rogers' shoes as manager at the Bastrop, La., mill.

Mr. Haynes joined I.P. in 1933 at the Camden, Ark., mill after graduating from the University of Arkansas in ch.e. He had been manager at Moss Point since 1950.

Mr. Rogers, a U. of Florida ch.e. grad, started with I.P. in 1933 and served in various mills and Mobile, being manager of Bastrop mill since 1951.

Mr. Perkins joined I.P. in 1936 from Georgia Tech, graduating in e.e. After serving in the Navy in the war as a commander, he was on construction at Georgetown, S. C., mill, and since 1943 has been divisional pulp mill engineer in Divisional Engineering, Mobile.

BOOMING MINERALS & CHEMICALS PLANT. At McIntyre, Ga., in heart of kaolin clay belt, Minerals & Chemicals Co. turns out high quality Spray-Satin from dryer plant at extreme right.

NIGHT LIFE AT HUBER. Like science-fiction movie, twin lights of loading wagons from cavernous Huber Co. clay mines wend their way to plant during round-the-clock digging operation.

The Clay Story – There's Rich "White Gold"

● A mere 25 years ago, only 5,000 tons of American clay was used annually in the paper industry. Only a handful of high-priced magazines could afford coated paper. Since then, a revolution has taken place in the coating world. Today, more than 500,000 tons of American clays are used.

This increase in American paper coating combined with the higher quality of coated papers has been materially aided by advances made in the production of superior clays in Georgia.

Even though these are geologically termed "secondary" kaolin deposits (meaning erosion of parent rock, primarily feldspar, moved there by rivers) as compared with primary English clays, they have now far outdistanced imported clays in use in paper mills. Because paper mills became increasingly "fussy," American producers were spurred to upgrade their product to today's high level.

GEORGIA'S CLAY "GOLD" FIELDS—Oddly enough, all the clay mines supplying the paper industry today in this country are within a 50-mile radius of Macon, Ga., which is located almost in the center of the state.

Many a "prospector" or would-be promoter who is interested in paper and clay has been known to hop a plane to some remote spot in the U.S. in the hope that some newly uncovered clay deposit will yield kaolin deposits. None of these excursions ever paid off.

North Georgia's "fall line hills" still horde the only suitable paper-coating clays found in this country. These veritable "gold mines" of clay were deposited in shallow bays by rivers when they met the salt seas which then rolled 150 to 200 miles farther inland than they do today. The clay fields stretch from the Piedmont Range to the coastal plain of Georgia and it is here that paper coating actually has its birth in the U.S.

HOW THEY ARE USED—American clays are used in formulae for conversion (brush-coated) and machine-coated papers. Some clay is still in demand for single and double coated papers by conversion process. American highly flowable clays are used in high speed paper machine coating formulae. But just 25 years ago, American clays were used only for fillers in book paper and for grounding clays in wall paper printing, in window shade coating and in the general ceramics industry. Its field in the paper industry was severely confining.

Today, just the opposite is true. In the magazine coating field alone, the use of American clays in the past year has totaled more than 500,000 tons. Combined with more than 2,000,000 tons of pure paper this produces more than 2,500,000 tons of coated paper going into the big circulation slick paper magazines as well as many other publications.

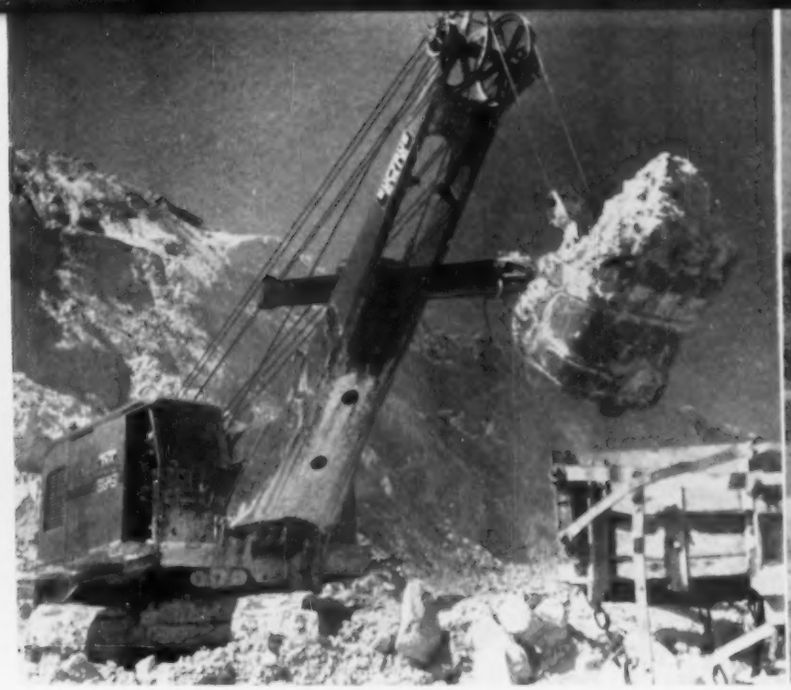
The clays and adhesives developed for use at these high speeds made possible magazines like *Life, Time, Newsweek* and *U. S. News and World Report* with their fabulous circulations and their 8 and 9-figure advertising revenues. *Life,* for example, has gone over the $100,000,000 mark annually in advertising revenue alone.

WILL IT KEEP GROWING?—The curve of growth in uses of clay will as surely follow the long-term steady growth predicted for paper as day follows night. The Stanford Research Institute Report, the Paley Report to the President, the recent study of the Institute of Paper Chemistry all come to the conclusion that by 1975 paper production and consumption in the U. S. will virtually double the totals of a year or two ago.

Coating of paper and board is increasing at an even faster pace.

Those close to the markets and trends foresee approximately twice the use of American coating clays in 1958-1960. That means increasing more than 500,000 tons to over 1,000,000 tons a year in the next three to five years.

WHAT IS THIS KAOLIN?—The name kaolin refers to a group of white or nearly white clays composed chiefly of the mineral kaolinite. A natural raw material, it may be described as a system of crystals and crystal groups varying widely in size and shape. Electron micrographs reveal that single or discrete kaolinite crystals are thin flat plates, roughly hexagonal in shape. Such crystals range in size from about 2 to possibly .05 microns in di-



MOUNTAIN IN THE PLAIN. Deep in bowels of the earth, Southern Clays, Inc., Bucyrus Erie steamshovel gorges out kaolin. In background, man-made cliffs appear as mountains in flat Georgia plains.

SHADOWS OF PROGRESS. Almost in shadow of its other factory, Thiele Kaolin at Sandersville, Ga., now boasts this gleaming new $500,000 spray drying plant as part of recent expansion.

In Georgia's Fabulous Kaolin Hills

ameter. Crude kaolins may contain 35 to 65% by weight of such a fraction. The remaining kaolinite substance exists as crystal aggregates which may be built up in layers to a considerable thickness. Essentially, the production of coating clays involves the extraction, with varying degree, of that portion of the crude clay which contains a high percentage of particles finer than about 2 microns.

THOSE INGENIOUS CHINESE—Once again, as in the case of paper, one must go back to the Chinese for credit in the recognition of clay. It was discovered in China some 2,500 to 3,400 years ago and named, by curios accident, from Chinese ("ling" means hill and "kao" is the name of a specific hill). Several hundred years ago, the British sent scientists to explore the possibilities of developing trade with China and on their return, they carried several samples of various materials tagged in bundles. One labelled "Kaoling" meaning "from Kao Hill" was torn off and replaced on the wrong package. That package later turned out to have China clay in it. The name has stuck through the ages.

LESSON IS LEARNED—During the war, when there was a shortage of railroad freight cars, some U.S. government bureaucrats learned a lesson about clay. They decided it just wasn't right to require so many r.r. cars in Georgia for clay delivery to paper mills. They asked: Why couldn't the clay, which is so plentiful in other parts of the United States, be used just as well? And then promptly answered themselves by refusing to route cars to Georgia. After a long delay in getting cars to Georgia—and a serious threat to war-essential paper production, they finally learned the facts of life—that there just wasn't any other state which could supply the quality of clay required in papermaking.

South Carolina also has a kaolinite type clay, but in small particles, and it is mined for other products, not for paper coating.

PRODUCERS ALL IN GEORGIA CORNER—It is interesting to note how close together in Georgia are the five producers of the paper coating clays. The mines of Minerals & Chem-

MAMMOTH PLANT OF GEORGIA KAOLIN CO., at Dry Branch, Ga., turns out 1,000 tons of paper coating a day. Special feature of Georgia Kaolin operations is blending of clay and water at mine site, the resulting "slurry" then pumped to main plant.

icals Corp. of America are at Klondyke, about 6 miles west of McIntyre, Ga., and at Gardner, about 15 miles distant as the crow flies.

From McIntyre, Georgia Kaolin's mine is only 7 miles away; Southern Clays, about 20 miles distant; Huber Clays, some 35 miles, and Thiele Kaolin, 50 miles. Also in the area are a number of small dry process plants, which take out grit by air separation and market cheap fillers. There is presumed to be many more uncovered kaolin deposits in the areas owned or leased by the five paper industry suppliers, enough to keep going for many decades. No one seems concerned about running out of suitable kaolin in Georgia to keep the paper mills in supply.

Streams deposited this clay in quiet lagoons off from the primeval ocean which lapped lands around Macon, Ga., within a 50 mi. radius. The clay was transported from the east and north of there. The area of the deposits is to the west and southwest of Augusta, Ga. The "fall line" peters out at about Americus, Ga., 70 miles southwest of Macon. This was the end of the journey to the sea. Geologically, the clay was formed from feldspar.

BRITISH INVESTIGATE DEPOSITS—Josiah Wedgewood, whose pottery products are famed among the ladies, sent an emissary to America in 1770, the year of the Boston massacre (British Redcoats killed 3, wounded 8), to investigate Indian reports of these clay deposits, the British tax on tea, paper, glass, and painter's lead imported by the colonies (did you know there was tax on paper, too?). In a few months the tax was removed on paper, glass and painter lead, because of the many protests, but the tea tax remained to become a major cause of the Revolution that started 5 years later.

Meanwhile Josiah was doing some importing of his own—it was Georgia kaolin. But the war interrupted any further activity by him.

It was more than 100 years later, in the 1890's, before these Georgia mines were really worked. And then it was for potteries. No one knew how to refine the American clays until the late 1920's. Meanwhile,the first paper coating was being done with British clays, and in the mid-20's, imports to U.S. reached a peak of about 140,000 tons for paper coating. The American clays, even then, were only used for fillers in paper and ceramics.

And then paper mills began mixing American clays with British. Refinements followed and today the paper industry uses 500,000 tons of American clays as against only 90,000 tons British. But British clays are coming back, too, for specialty paper coating uses.

SEARCH FOR NEW SUPPLY GOES ON—The clay companies of Georgia continue to test locations in the "fall line" belt for future mine locations. It costs just $100 to sink a hole, after which the kaolin is checked for viscosity, for undesirable iron content, for brightness, and finally, for size of particles.

In today's mines, the ratio of overburden to clay runs an average of 3 to 1. But time and necessity may change this. Now, if overburden runs as high as 4 to 1, the site becomes impractical to work. Mining officials point out that necessity and new techniques may change the picture. Research, combined with the many reserves still uncovered and untapped in Georgia's "white gold fields," promises to make this lucrative belt a big business for a long time to come.

Here, then, are the stories of the five big companies of Georgia which supply the entire nation with its paper-coating clay.

Minerals & Chemicals Story

How its clay is mined and processed for paper industry —Spray Satin marks a major advance in quality

● The American producers of coating clays are continually upgrading their products to meet demands of the paper industry.

One such company is Minerals & Chemicals Corp. of America, which is spray-drying a very high quality clay at high solids. Its Spray-Satin has marked a considerable advance in the industry. It is processed just the way your instant coffee is made. It is made more pure and more uniform as a result of a new spray drying technique.

Minerals & Chemicals has its mines at McIntyre and Gardner, Ga. The Klondyke mine at McIntyre was started 30 years ago; has been mined all through the era of phenomenal growth of clays for papermaking. It is elliptical, a half mile long, and almost as wide at the widest section.

Gardner mine is larger but much of its overburden earth or rock over the clay has not yet been removed. At Klondyke, the clay bed averages 12 to 13 ft. in depth and at its thickest, best parts it is 25 to 30 ft. deep. From 80 to 95 ft. of overburden was, and still is, being removed.

Even though practically all opened up, the Klondyke mine still has some 10 years more of production and adjacent lands should prolong this. Gardner will have 30 or more years. Other reserves are still uncovered. When M&C really gets to working the Gardner vein, after the Klondyke mine is done, it will pump the Gardner clay slurry through a 16-mile long pipeline to the McIntyre works.

HOW CLAY IS MINED—Big Euclid scrapers and transporters, with fore and aft General Motors 190 hp motors, were introduced to clay mining by M&C. With wartime-type tank transmissions, they are doing a much speedier job of clay mining than previous lighter and slower equipment. These big Euclid earth movers cost about $55,000 apiece, and their 30-ply nylon cord tires are $2,600 apiece.

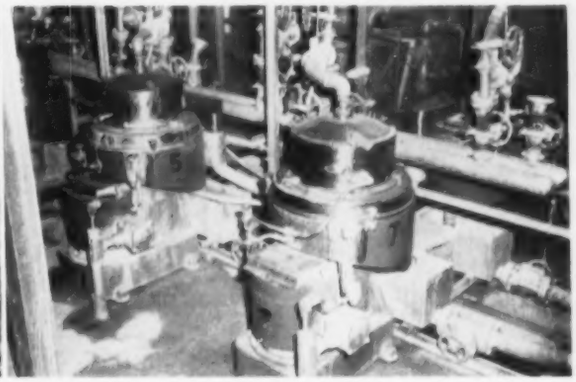
A PULP & PAPER editor, watching them, guessed their speed at 5 to 10

OFFICIALS OF MINERALS & CHEMICALS. Together at McIntyre, Ga. (l to r), ALFRED G. BLAKE, Executive Vice Pres. and Director of Sales; CALHOUN TODD, Production Mgr. in McIntyre area; TOM FAULKNOR, Director of Production. And, at right, ROBERT W. WILKERSON, Sales Promotion and Adv. Mgr. for Minerals & Chemicals, with CALHOUN TODD, Production Mgr. at McIntyre, Ga.

SPEEDED UP CLAY MINING. Minerals & Chemicals Corp. introduced this big Euclid combination scraper and transporter to clay mining. It strips off earth overburden, then "mines" or scrapes up kaolin, moving at a good steady speed, picking up 30-ton load as it goes along. This one is working the half-mile long elliptical shaped Klondyke kaolin mine at McIntyre, Ga.

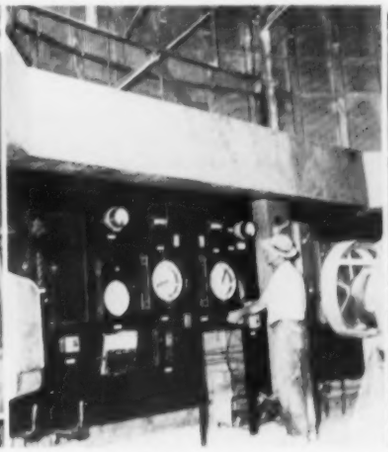
PULP & PAPER'S OWN CLAY MINE PICTURES. Left, A Hough Payloader scoops a bucket of clay from the storage pile built up by the Euclids, and (right) dumps it into the water mill, where it gets a primary degritting and is thickened to 26% solids and piped to McIntyre.

CLAY SOLIDS CONTENT IS BUILT UP. After bleaching and going through Sweco separators for cleaning, clay slurry passes through these Sharples continuous dewatering centrifuges which builds up solids content so it can be picked up on filters. This is midway in new Spray-Satin process at McIntyre.

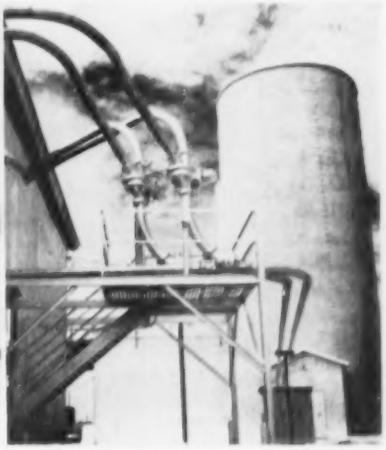


HIGH SOLIDS CONTENT IS REACHED. From Sharples dewatering centrifuges, clay slurry goes over three of these big stainless steel, nylon-covered Eimco filters. Doctor roll in foreground removes clay, a blade shaves cake and deposits it into blunger where tetrasodiumpyrophosphate is added as dispersant.

SPRAY-SATIN IS PROCESSED. M&C's patented process culminates here, funnel-shaped bottom of big spray dryer by Nichols Engineering & Research Corp., in which this new high quality clay is flash dried. Dried clay globules fall to screw conveyor and Fuller Airveyor system carries them to storage. Note Sweco Screen—small compact centrifugal separator—at upper right, which gives 60% solids clay slurry a final cleaning before it blows into dryer.



CONTROLS MAINTAIN CLOSE TOLERANCES. Minneapolis Honeywell controls and recorders are seen in this control panel for Spray-Satin dryer at McIntyre. Note two Speedomac recorders, one being adjusted by operator. Such equipment is familiar to papermakers. Heated air hitting shower of clay is over 1,000° F. and in a flash uniformly reduces moisture content of particles from 40% to less than 1%.



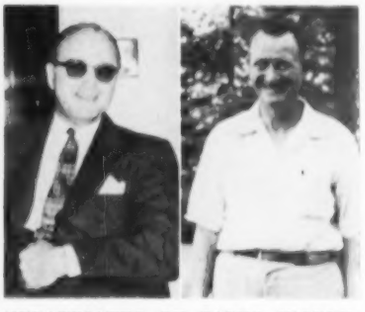
FOR CLAY, FULLER AIRVEYORS DO GOOD JOB. These are Fuller Airveyor pneumatic system lines for the finished high quality Spray-Satin clay product, the blue ribbon grade of Minerals & Chemicals, carrying it to storage. Their operators at McIntyre say that the Fuller Airveyor is the way to handle the clay—it works wonderfully well in Airveyors and keeps pure.

mph. when they were licking up the clay with their scraper, loading it at the same time. They whip their load back to the milling shed, at one extremity of the mine, at twice that speed. Their big iron pans hold 20 to 22 yds. (30 tons of clay a trip). When they lower the scraper, the pan is loaded in a short run of a couple of minutes. Several Euclids at Klondyke mine remove overburden or clay at the rate of 100,000 yds. per month.

The Euclids deposit clay around the milling shed, where small Payloaders pick it up and dump it into the mill. Water is added and a slurry formed. Most stored kaolin here can be shoved under a protective roof, and about one month's supply is stored in this shed. It is given a primary de-gritting at this mill on a scalping screen and then flows into a large thickener tank. It is pumped at 26% solid content through a 12 in. pipeline to the McIntyre plant 5 miles away.

HOW CLAY IS PROCESSED AT McINTYRE—At McIntyre, the clay slurry is received in a 100 ft. Hardinge circular thickener; the thickened sludge is pumped out from the bottom to a 2-stage degritting process. This is a 2-stage Dorrclone system. Sodium silicate is used to deflocculate the clay. It allows the slurry to flow freely, even though solids content is 25%-30%. The free slurry goes to six Bird Machine Co. centrifugal machines where clay particles are fractionated and automatically separated according to the fraction size.

From this point, the raw material is sent via different channels and processes, becoming products of differing qualities. One of the determining features of clay products is the variation in particle sizes.



EXPATRIATES OF PAPER WORLD. They are ex-papermakers, alright, but OLIN CALLIGHAN (left), who wears his sunglasses in Georgia clay country, and BERNIE ASDELL (right) are still very close to the paper industry. "Cal," now Paper Industry Sales Mgr. for M&C Corp. of America, was Asst. Gen. Supt. and Chief Chemist at Allied Paper Mills, 1926-8. Bernie, now Mgr. of Process Development for M&C Corp., was formerly with Watervliet Paper Co. and Minnesota & Ontario Paper Co.

GRADES OF CLAY AND PAPER USES—Newest and highest quality of McIntyre products is Spray-Satin, which goes through the most elaborate processing—bleaching, thickening, filtering, pre-dispersing and spray drying.

Next is the Stellar grade, not as elaborately processed, but also a fine grade of coating clay, different from Spray-Satin in that it is non-dispersed.

These have high brightness and hiding power (opacity) and go into high grade litho and offset papers and enamel paper grades. Both give higher sheet smoothness and improved printability.

Next are the H-T and predispersed H-T clays, a somewhat coarser grade, but still of good opacity and brightness. These are used in big tonnages for the well known slick paper magazines of big circulations, such as *National Geographic*.

Lower grades than these are Klondyke water-washed and NoKarb. There is not much processing except preliminary degritting and washing of these grades. NoKarb is used extensively as a simple paper filler.

PROCESSING OF SPRAY-SATIN—After the previously mentioned Bird machines do their fractionating and separating, classifying of grades by particle size, each grade goes its separate way. The clay diverted for Spray-Satin first is bleached. It is run continuously into tanks along with a quantity of zinc hydrosulfite. The hydrosulfite is made by burning sulfur in a regulation burner, absorbing the SO_2 in a packed tower with water, thus forming sulfurous acid, and adding metallic zinc dust to this. After clay is mixed with this in bleach tanks, mechanical dewatering follows.

Sweco screens, the small compact vibrating centrifugal screens used for separating fines from bark by pulp mills, take out scale and trash. Then come Sharples centrifugals, like laundry wringers, which build up solids content. Next are 3 big rotating Eimco 11½ x 18 ft. stainless steel-nylon covered vacuum filters, on which a thick clay is built up. A fine water mist spray further cleans and purifies the clay.

An M&C-designed doctor roll removes cake from the Eimco drums. A doctor blade shaves and deposits cake in a blunger where a dispersing agent is added. The predispersed slurry is later used as feed for the spray dryer.

The clay cake slurry is now 58% to 60% solids and is pumped through aluminum pipes to the new Spray-Satin plant. There, from storage, it passes through another Sweco screen for further purification and then through a Ferro liquid magnetic filter. At this point slurry is pumped into a high cone-shaped Niro (Danish-developed) spray dryer, manufactured by Nichols Engineering & Research Corp.

Because the clay is a slurry right up to the drying point, it is easy to scalp, and it ends up a cleaner product than would be possible otherwise. It is only in the past 6 years that a predispersed spray-dried clay has been made.

WHAT HAPPENS IN SPRAY DRYER—Clay slurry entering the spray dryer is dried in a flash—about a second. Slurry entering the dryer hits an impeller spinning at 10,000 rpm. Particles are sprayed in umbrella fashion. They are flooded by air heated to 1,000-1,100° F. Air is exhausted through a bank of cyclones which recover any clay escaping that way. The product is less than 1% moisture, but never over-dried or calcined, which means not a teaspoon of impurity in a carload.

The Spray-Satin is moved out of the bottom of the conical dryer by screw conveyor, then Fuller Airconveyors move it to storage and to box cars for bulk customers. It is easily handled at paper mills in Airveyors and, because of predispersion, it goes into suspension quickly and "makes-down" rapidly.

A 50-ton car is loaded in an hour by hopper, and big sheets of kraft paper over and under the clay keep it clean. Some new hopper-type r.r. cars are used. Only barefooted or stocking-footed workers are allowed in the cars.

For bag customers, the clay is automatically packed into 50 lb. multiwall kraft bags with valves at tops for filling. A flattener makes an easily palletized smoothed squared bag, moved right into boxcars by roller conveyor. Open conveyors throughout the plant are by Jeffrey conveyor.

MEN WHO LEAD M&C—James Deshler II, is chairman of Minerals & Chemicals; Wright W. Cary, is president. David E. Lilienthal (former AEC chairman), is chairman of the executive committee and research policy committee; and Alfred E. Blake is executive v.p. and director of sales. The new company has over 1,000 employes, and about 365 are in the former Edgar operations.

Olin W. Callighan, of Kalamazoo, Mich., is manager of paper industry sales. Robert W. Wilkerson, former ad agency executive is sales and advertising promotion manager. Dr. A. I. Mueller is director of all research and Dr. C. G. Albert heads application research. Tom Faulknor is director of production. Calhoun Todd heads production at McIntyre and Gardner, Ga. E. K. Wood is plant

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Manufacturers of

LUSTRA

WHITETEX

COLUMBIA COATING CLAY

COLUMBIA WATER WASHED FILLER CLAY

33 Rector Street New York 6, N. Y.

manager; Jack Walton, mines manager; L. L. Petty, manager of quality control; M. R. Davey, engineering manager; and Bernie Asdell, manager of process development for the whole company—all located at McIntyre.

ONE OF THREE SOUTHERN CLAYS PROCESSING PLANTS is here at Savannah, Ga. Southern also processes at Gordon and Columbia, S. C.

Southern Clays Digs Down Deep

To get to wealth of kaolin deposits, Southern Clays excavates 12 stories deep, runs railroads into mines

● Many an excavating contractor has turned the air green with profanity when his machines struck clay. Rightly so, probably, since it dumps with reluctance; traps water, causing him to use pumps; is unstable, causing him to shore walls; reflects light like a gigantic magnifying glass and sticks to the skin like chalk dust—only is much heavier.

In the deep mines of Southern Clays, Inc., however, the most up-to-date machinery is used to lick these headaches. Once the pure white clay is removed, all the effort is worth while. To do it, Southern even runs a railroad underground!

Southern Clays operates in Georgia from a large, one-time residence in Gordon surrounded by daffodils and camellias. The boss here is intense, soft-spoken John Scott, a native of Scotland who has called Georgia his home for the past 30 years. His office includes everything from charts and filing cabinets from which he can pull detailed information on such remote objects as an idle 30-year-old dragline, to a collection of perfectly preserved shark teeth, shells and bone sections from the prehistoric era—relics removed from the clay deposits and now part of Scott's collection.

ORGANIZED IN 1927—Southern Clays traces its origin back to 1927 when it was formed as P. W. Martin, Gordon Clays, Inc. On Nov. 22, 1947, it was reorganized as Southern Clays, Inc., and W. H. Shields became president. The business end of the company is at 33 Rector St., New York City. The mining end, from whence comes the valuable kaolin clay, is located in the heart of the white clay belt near Macon.

Since clay deposits follow no pattern except that they lie within the southeastern Georgia area, prospecting takes on a special importance to Southern Clays. Of the 30 men employed in the entire mining operation, nine belong to the prospecting crew. Because a kaolin deposit will run out as quickly as it started, these nine men clearly define the mining area, throwing into use either a Failing or Joy rotary rig. They sink holes over the property on 400-ft. centers, drill holes and take core samples on 100-ft. centers. Once this area is delineated, expensive equipment is moved in and the mining operation begins its two-shift, 7 a.m. to midnight, digging.

HOW CLAY IS RECOVERED—Recovery of clay begins with the removal of overburden. A Caterpillar D8 crawler with bulldozer topples trees and brush, then a twin-engine Euclid scraper slices off about 12 ft. of soil and sand overburden. The 18-yd. machine spreads the load in an area outside the mining area. Then a Bucyrus-Erie 7-W walking dragline swinging either a 6-yd. Red Arch or a 7-yd. Hendrix bucket on a 165-ft. boom comes into play.

Stakes set in the ground guide the walker's excavation. It reams out a swath 100 ft. wide and about 55 ft. deep, spilling the top soil, sand, red clay and undesirable white clays, to one side. Before it is through, the gigantic shovel has ripped open a hole in the ground as deep as a 12-story building.

RAILROADS GO RIGHT INTO HOLE—After it has uncovered a lucrative ribbon of clay, the walker mines out about 40 ft. of the width of the mine and piles it on top of the remaining kaolin deposit. This 40-ft. path gives the crew room to lay railroad tracks, and a work train is brought right into the mine to carry out the precious clay. In an average shift the walker will move 2,000 yds. of material.

With the clay now ripped out of the ground, two 1¾ yd. Bucyrus-Erie 38-B shovels do the loading. Powered by (Caterpillar) diesels, with a 3-ft. dipper extension and 33-in. wide treads, these shovels load 3 and 4 yd. haul cars. It takes one machine about 12 minutes to fill a 12-car string including the move-up time of the cars.

The narrow-gauge railroad runs on about 6 miles of track between the pits and the processing plant behind the Gordon office. Until 1951, steam engines were used to haul the laden cars but now 4 General Electric locomotives power the heavy 12-string trains. Each is powered with a Cummins diesel. Three of these are 45 tonners, the fourth is a 25-ton engine.

The cars used to haul the clay are specially made to enable quick unloading. The body rests on a swivel and is chained on both sides. When the payload arrives at the processing plant, it can be unloaded from either side simply by unhitching the chains on the opposite side. The company has 100 of these teeter-totter cars in use.

PUSH AND PULL PROPOSITION—Once tracks are laid in the mines, the 25-ton locomotive pushes a string of 12 cars into the big ditch, takes on a load, then pulls it back to a switching point where one of the 45-ton diesels are parked. When the big locomotive has a string of 36 cars behind it, it makes a run down the main line to the plant. One man operates both shovels. He rides down on the 25-ton diesel,

SOUTHERN'S MINING MANAGER. Soft-spoken John Scott, a native of Scotland, has called Georgia home for 30 years. He runs Southern Clays' mining operations from former residence which is now company office at Gordon.

END OF THE LINE. Two of Southern Clays' 45-ton General Electric locomotives arrive at processing plant, each hauling 36 cars of clay. Cars hold 2,700 pounds per yard of material to be washed, tested, pressed.

TWO-WAY DUMP CARS. Pit Foreman J. B. Gibbs explains how car operates, pointing to chains which keep teeter-totter car upright. To dump cars, chains on opposite side are released, car bed falls the other way, dumping its load of kaolin clay.

HEADING FOR MAIN PLANT. Brakeman hops off a car after he hooks up 12-car string from mines to a 36-car train now enroute to main plant where clay is processed.

LOADING UP! Shovel operator rides 25-ton locomotive into pit, hops off, loads 12 cars and rides back out. It takes about one minute to fill each car with this 38-B shovel.

hops off when it reaches the shovel, starts the 38-B, loads 12 cars and boards the train again. Two of the 45-tonners haul payloads and the third is used for switching purposes.

THE WATER PROBLEM—Because clay is not porous, the water problem is ever present in a clay mine. Pumping into worked out mines goes on constantly by a fleet of 14 Wisconsin-powered LeRoi pumps.

Using 6-in. suction lines and discharging through a 4-in. rubber hosing, they keep all occupied pits dry until the kaolin deposit has been worked out and the mine is no longer useful. Southern Clays also maintains its own shop at the mine site for keeping crawlers, scrapers, pumps and miscellaneous equipment in top running order.

PROCESSING PLANT IS END OF THE LINE—The goal of Southern's white clays is the processing plant behind the Gordon office. Here, on a 40-acre site, the raw clay gets first-class treatment at the hands of chemists and lab men. It is washed, settled, filtered, pressed and dried. A well-equipped lab is used to give the clay a series of tests while it is undergoing process treatment.

Southern Clays, Inc., sells kaolin either crushed or pulverized in bulk bags. Other shipments leave in a liquid or as pulverized material in 50-lb. state.

The company is constantly striving to keep its equipment abreast of changing demands. Not too many years ago strippers and loaders as well as locomotives were steam powered. Two ancient draglines are still parked on their railroad carriages at the mine site—reminiscent of a past era in Southern's fast-growing operation. They serve as reminders that Southern Clays is ready, willing and able to satisfy today's clay industry.

How Georgia Kaolin Does It

Processing coating clays at mine's doorstep is secret to top uniformity in 1,000-ton-a-day Dry Branch plant

● The Georgia Kaolin Co., which either owns or controls some of the largest clay reserves known in this country, literally begins processing its coating clays at the mine's "doorstep."

Its method of blending the various degrees of clay is akin to setting up barkers and chippers in the woods and

REFINING BEGINS HERE. At Georgia Kaolin mine site, mobile blunger begins processing the clay as it is taken from the face. Wet-weather trucking delays are also eliminated by use of this machinery. Clay is slurried here, pumped several miles to big blending tanks near the company's main plant.

processing pulpwood right on the spot as it is cut. It is a far cry from those days in 1900 when the firm was founded and the rule was "dig it and ship it." Almost all clay from the Dry Branch, Ga., mines then went into production of ceramics.

Today, the shoe is on the other foot. Very little kaolin clay goes into ceramics. Almost all of this precious "white mud" is used in the production of coated papers. Emphasis on high-speed machine-coated papers has been first here since soon after Peter Massey began his pioneering work in the field in 1927. Georgia Kaolin, anticipating the eventual widespread use of these papers, invested millions of dollars in mining and processing facilities. The gamble paid off handsomely. Now Georgia Kaolin turns out 1,000 tons a day of highly uniform clay products, supplying about one-third of the paper-coating market.

REFINING BEGINS IN THE FIELD—Perhaps the most important aspect of Georgia Kaolin's operation is its in-the-field blending methods. Since clays vary in quality from location to location, the company feels that uniformity of these various characteristics of clay is of utmost import. Blending different degrees of clay, therefore, begins almost within sight of the mines.

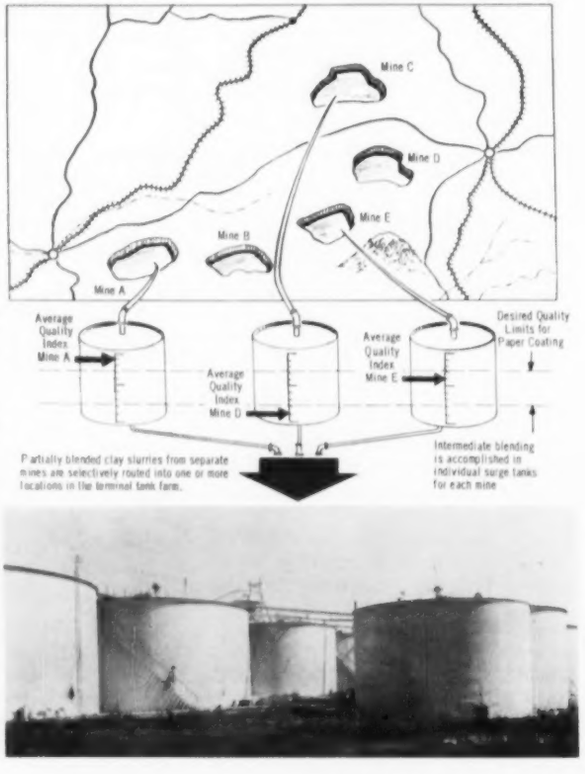
In many respects the processing of kaolin is similar to the treatment of wood for production of groundwood or pulpwood. Variations of whiteness, viscosity and grit pose problems for the clay manufacturer which are similar to those caused by variations in the wood from different timber stands. In the case of clay, Georgia Kaolin has long felt that uniformity is best assured by blending raw clays prior to processing, thereby standardizing quality. This is done by mixing the raw clays in the field.

MULTIPLE MINING, SELECTIVE BLENDING—Until recently, raw clays were transported to the processing plant in dry form and stored in sheds. Since blending was done in dry form, Georgia Kaolin felt it was incomplete. But in 1946, equipment was developed enabling the mixture of clay and water at the mine site. The resulting mixture or "slurry" was then pumped to the main plant.

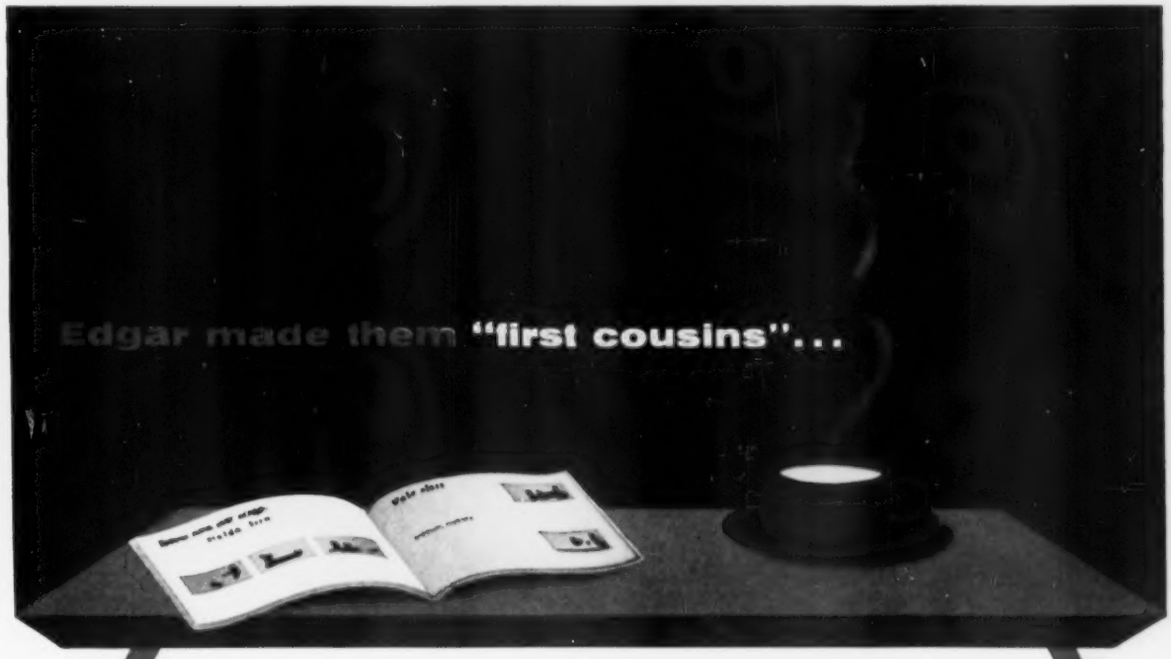
This mobile equipment, known as a "blunger," not only provides a more convenient all-weather method for handling clays, but enables averaging of the inherent natural variations of clay at the face of the mine. The variations in different clays are then further reduced at Georgia Kaolin by blending the slurried products from the various mines. A large terminal tank system close to the main processing plant is used for this purpose. Capable of storing 7,500 dry tons in suspension, this tank farm is believed by the company to be the largest in North America for this purpose.

Through the use of mobile blungers and the tank farm installation, Georgia Kaolin has what in the pulpwood industry would be the equivalent of several mobile woodcutters, barkers and chippers all operating in various stands of wood and sluicing the resulting chips to large collection tanks near the pulpmill.

GEORGIA KAOLIN GETS TOP CLAYS—The millions of tons of clay which the company has in reserve en-


Mine C
Mine D
Mine E
Mine B
Mine A
Average Quality Index Mine A
Average Quality Index Mine D
Average Quality Index Mine E
Desired Quality Limits for Paper Coating
Partially blended clay slurries from separate mines are selectively routed into one or more locations in the terminal tank farm.
Intermediate blending is accomplished in individual surge tanks for each mine

SLURRIES ARE MIXED THIS WAY. Diagram and picture shows how Georgia Kaolin pipes its raw clays into tanks near mines. Partially blended, they are then pumped into the tank farm (below) where the final mixture is made and tested to determine whether it has reached the average uniform quality desired.



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Results? Ultra-uniform coating clays that do amazing things to paper quality.

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SPRAY-SATIN Coating Clay: A fine fraction, spray dried, predispersed coating clay with unmatched uniformity, low moisture content, excellent make-down properties, high bulk density, and high brightness. Specially fractionated—ideal for both high and low solids machine and conversion coating and size press coating applications.

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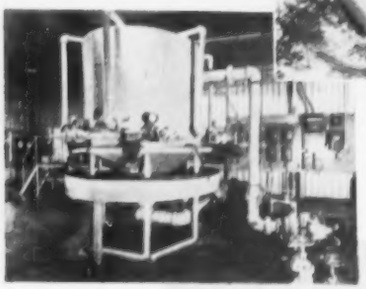
Aerial view of Thiele plant.

Cleaning equipment at mine.



THIELE KAOLIN

Water-Washed, Spray-Dried

COATING CLAYS

meet the most rigid requirements for • excellent color • high brightness • uniform low viscosity.

Storage of clay slurry at mine.

THIELE PAPER CLAYS are closely controlled in quality.

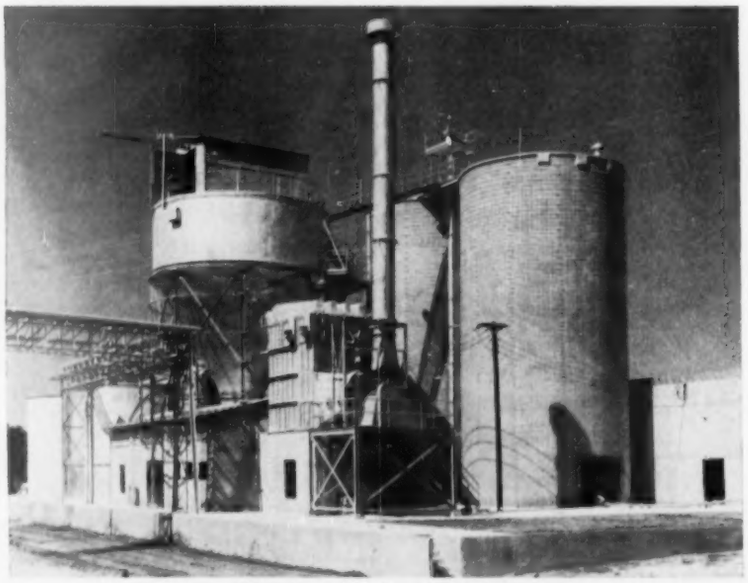
Extensive holdings throughout the heart of the Georgia clay belt give assurance of a dependable source of supply. Processing is done at Thiele's modern plant at Sandersville — where tremendous storage and latest processing facilities are available.

Thiele's new Spray Drying plant is second to none—providing users of Thiele Clays with such important benefits as—

- **Easier Make-Down**
- **Improved Handling**
- **Lower Moisture Content**
- **More Uniformity**

Thiele Can Help You Make a Better Product.

Write for full information and a sample of Thiele Kaolin Coating or Filler Clay for your particular use.



View of new Thiele Spray Drying Plant.

Thiele Kaolin Company

P. O. BOX 270 • SANDERSVILLE, GA.

ables it to be highly selective in its mining operation. Deposits are surveyed, core-drilled to determine various qualities, then analyzed and catalogued. To assure long term uniformity, the firm's mining programs are planned up to five years in advance.

Once the clay has been delivered to the processing plant, it is subjected to several additional steps so that its characteristics—whiteness, opacity and finishing qualities—are improved. But despite the many tests it goes through, company officials feel that the most important single step in Georgia Kaolin's operation is the large-scale blending of known quality slurries in its sprawling tank system.

HOW CLAYS ARE CLASSIFIED—When clay slurry reaches the terminal tank, it is classified to remove grit, mica and other gross impurities. By means of a centrifugal fractionation operation, company chemists recover from degritted slurry only those types of clay particles possessing the desired properties of hiding power and gloss for paper-coating. This fractionated clay is then chemically bleached to enhance and to standardize its whiteness.

Georgia Kaolin pioneered the development of continuous centrifugal fractionation which allows even closer control than was posssible with previous methods. Now in operation, it is covered by U. S. patents controlled by the company.

Once bleached and rinsed to remove bleaching residues and to control pH and reactivity, the clay follows one of several paths, depending on its physical form and dispersing characteristics.

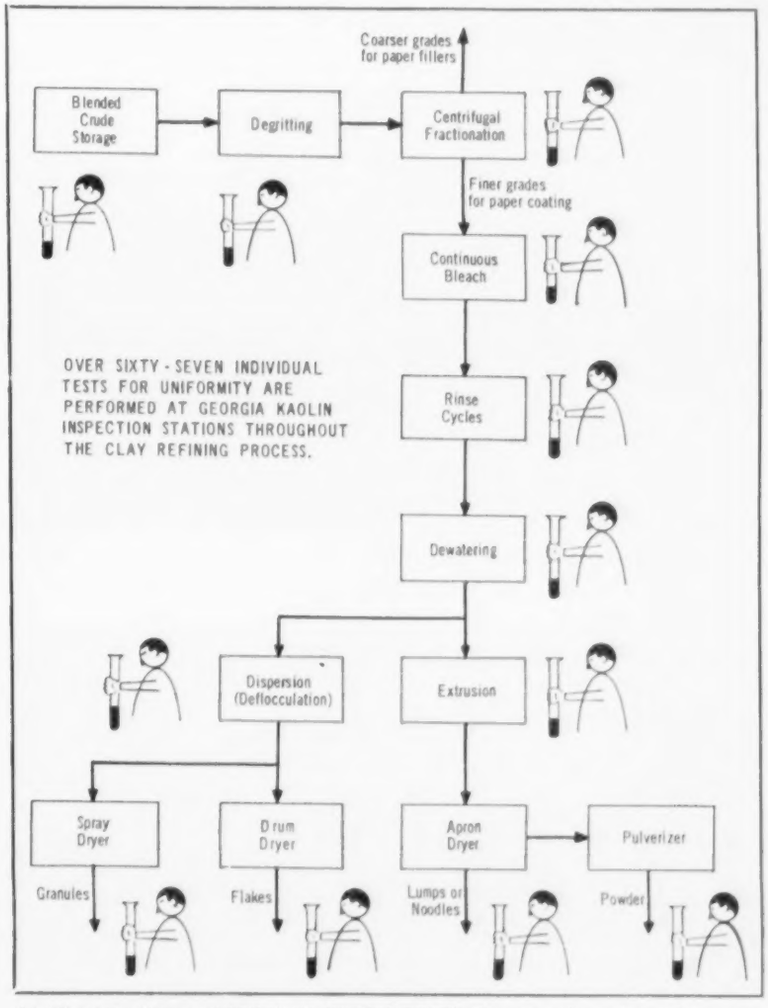
PERSONAL SUPERVISION NECESSARY—Despite the various systems used by the company to assure maximum uniformity in its clay product, Georgia Kaolin still supplements all stages of processing with close personal supervision. At work full-time are some 50 chemists whose job is to constantly check and recheck the clays as they are whipped into shape for the coating machine. More than 67 individual checks are performed from the time the clay is mined until the carload is enroute to the user.

This testing program does not stop until the clay is ready to go. Then, in a final checking phase, it is tested to determine how it will stand up under actual use conditions. The Georgia Kaolin Co. maintains an applications development laboratory which investigates and develops new coating processes. Precautions such as these are insurance against any complaints at the production end of the paper-coating process.

RESEARCH GOES ON—Despite the fact that Georgia Kaolin, like most other clay companies, continues to modernize and bring its methods up to date, the company realizes that research is an important part in the manufacture of high quality coating clays. To keep a high degree of uniformity and quality, the firm actively sponsors investigations in clay technology and applications at six major universities.

From the "wet end to the dry end," Georgia Kaolin prides itself in producing a top product, one which will meet the standards and demands of the ever-increasing paper-coating industry.

ONE HUNDRED FEET HIGH, Georgia Kaolin spray dryer is largest unit of its kind for production of predispersed paper-coating clay granules.



CLAY GETS "THE WORKS" IN THESE TESTS, Diagram shows how clay moves from blended crude storage through sixty-seven different steps before it is selected and delivered to main plant for final processing and testing. Chemists constantly check all stages.

Huber Develops High Viscosity

At around-the-clock operation in South, firm works to improve clay's flow characteristics with new processes

• Digging for kaolin clay is an around-the-clock operation at Huber, Ga., and Graniteville, S. C., mining centers of the J. M. Huber Corp. The big lights burn from dark until dawn while workers gouge this important white stuff out of the ground and transport it to processing plants nearby. The lights go off when the sun comes up, but digging never stops.

The manufacture of kaolin clays of high viscosity for paper coating and other purposes is one of the most important departments in a company which is busily building itself bigger and bigger in several different fields. Huber also produces carbon black, oil and gas, printing inks, natural gasoline and paraffin scrapers at plants located in Texas, South Carolina, New Jersey, Illinois, Brooklyn and Georgia.

Huber entered the clay business in 1926 as a partner in a small plant at Graniteville, S. C., known as Twiggs-Huber. Huber had learned of the need for high quality clays from its ink and carbon black customers. Early in 1927, Huber purchased Twigg's interest and began remodeling the plant.

Before the project was completed the plant was swept by fire which destroyed everything but the dryer and Raymond mill. With this machinery as a nucleus the present plant was built. This small clay business, almost wiped out by fire, has since grown to one of the leaders in the field. In the period 1945 to 1951 alone, Huber's gross sales in the clay division increased 198%.

Typical of its continual progress in the field is Huber's new clay process Viscontrol, a unique patented process for controlling clay viscosity and enhancing the kaolin for use in high-speed coating operations.

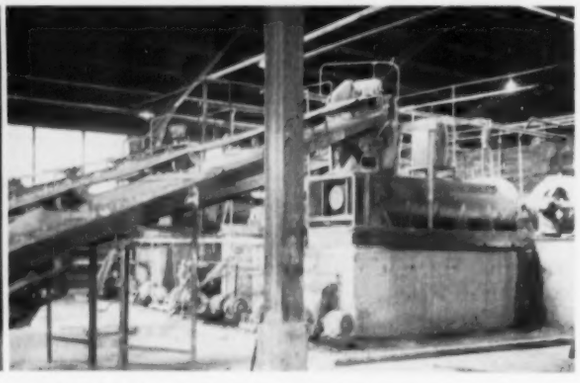
GOLD IN THEM THAR HILLS— Responsibility for locating and earmarking Huber's clay deposits in Twigg's County, Ga., and Aiken County, S.C., rests on the shoulders of Huber's Prospecting and Exploration Department supervisor, Bob Shi. Once pinpointed, clays are tested for bleaching characteristics and workability in various paper coating colors. The clay is mined conventionally on a 24-hour basis with the latest types of machines —among them a new Marion 220-ft.

HUBER'S TOP MAN, HANS HUBER, President of Huber Clay Co., poses happily in front of some of the publications which use coating clays for their paper.

READYING MINE FOR DIGGING. Huber removes overburden from the kaolin site with these huge machines, then big shovels move in to begin digging out the lucrative "white gold."

HAULING CRUDE CLAY TO PLANT. Caterpillar tractors with these huge dump wagons attached are used by Huber to haul freshly mined clay from pits to plant.

WHERE CLAYS ARE STORED. Six new silos at Huber, Ga., are capable of storing several freight carloads of clay each. Clay is stored here prior to being processed, bagged and shipped to users.



HUBER'S VISCONTROL METHOD is carried out here, as crude clay, water and deflocculent are continuously fed to pugmill. After pugmill treatment crude clay can be diluted and subjected to fractionation as needed.

dragline with 9 cu. yd. capacity, believed by the company to be the largest used in the industry. While miners take clay out of South Carolina and Georgia plains, Bob Shi and his prospectors continue to search for new deposits.

From the mines, crude clay is hauled to the plants in heavy wagons and dumped into a hopper where it is crushed, reduced to small lumps and conveyed to long sheds for storage according to grade.

REVOLUTIONARY DEVELOPMENT: VISCONTROL—For the past several years, Huber has been investigating a method for controlling clay viscosity. The behavior of concentrated clay coating mixtures during their preparation within a plant and during their subsequent application to the surface of a rapidly moving paper wire depends considerably on the flow characteristics. A clay of definite and uniform viscosity properties is therefore highly desirable.

Their method, now field tested and in use, is called Viscontrol. It is used by the firm in place of former methods of selecting desirable crude clays. By use of this process, Huber alters the inherent properties of the crude clay and regulates the size of particles.

This process is carried out by Huber in a continuous manner in a pugmill into which the proper amounts of crude clay, water and a deflocculent are fed. The equipment, operating at about 30 hp hours per ton of clay, will produce a marked decrease in the inherent viscosity of the clays in concentrated suspensions. After pugmill treatment, the crude clay can be diluted and subjected to various methods of fractionation so that clay particles can be successfully separated.

CLAY IS SEPARATED AND DRIED—From the pugmill, clay is fed into a blunger where it is mixed with water in an action much the same as that of a giant size malted milk shaker. From the blunger it goes to a Dorr Classifier where fine clay particles overflow at the top and the coarser particles are pumped from the bottom. Clay particles then pass over a 200-mesh screen to remove foreign material which may have collected during the settling interval. With this step, the refinement is complete and the clay is then bleached, a necessary step since clays naturally possess a brownish color caused by iron impurities. The iron is made colorless by chemical treatment and the clay is then recovered from the water by filtering and drying.

At Huber three methods are used for drying. In one, the filtered clay mass is extruded through a perforated plate where it drops to a moving

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Now comes the 1955 Model HA — a completely new design. Its entirely new bucket control and other improvements boost production output 50 to 100%! Its "breakout" bucket action with 40 degree tipback gives it twice the digging power — it gets bigger loads, *faster*, in tough digging.

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PP

screen conveyor which circulates through a tunnel-type dryer. The clay is dried by hot air. This type of clay is shipped to the consumer in either lump form or it is pulverized by hammermills before shipping.

The other methods produce predispersed clay. This is accomplished by treating the filter cake with a suitable dispersing agent. This action converts the putty-like cake into a free-flowing slurry. The resulting slurry is dried either by applying a thin film to heated metallic drums or by spraying the slurry through suitable nozzles into a heated chamber. The former method yields material in the form of small flakes, and the latter is characterized by its tiny bead-like pellets.

THE SCIENTIFIC TOUCH—The fine-particle, water-washed clays are used principally in the coating of paper, particularly grades used in magazines such as *Life* and *Time*. They are also used as filler in certain types of paper, coating for wallpaper, coating of boxes and accoustical board and for special rubber uses.

The coarse-particled, water-washed clays are used principally as a paper filler and for ceramics.

As in all leading processing plants, Huber's chemists play a leading role. They keep a close watch on the clay as it goes through the various stages of processing. Starting from the time the first core sample is taken until the clay is checked on a supercalender to determine its performance in actual use, laboratory experiments on clays are performed to be certain it measures up to the standards demanded in today's ever-growing paper coating use.

DIRECTING OPERATIONS at Thiele Kaolin's Sandersville: PAUL F. THIELE, (left) General Manager (and son of William F. Thiele, Power Div. Mgr. of Consolidated Water Power & Paper Co.) and OWEN F. ETHERIDGE (right), Supt. of Sandersville plant and mine.

VINCENT KRAPFEL, Wisconsin Rapids, Wis., who is a Vice Pres. of Thiele Kaolin Co.

Where Thiele Kaolin Operates

Producer of spray dried clays in million dollar plant is affiliated with maker of Burgess Iceberg pigments

● One of the large deposits of soft, free-flowing kaolin in the American white clay belt comes from Sandersville, Ga.

Here PULP & PAPER visited the million-dollar plant of Thiele Kaolin Co., one of several in this vicinity.

Champion Paper & Fibre Co. also has its own clay plant down the road a piece. Around 52% of clay mined and processed at Thiele Kaolin is for the paper industry.

You have to hunt for clay as you do for gold, remarked Owen E. Etheridge, supervisor of plant and mine operations. For every 100 holes dug prospecting for clay, you will find only one mine, he said. Some $10,000 to $140,000 a year is spent in hunting for these clay deposits. It is an art as much as a science, he said.

Clay is mined at an open pit for Thiele Kaolin by a Bucyrus Erie crane with a 185-ft. long dragline. A new 9-mile pipeline carries clay slurry to the plant. Storing of mixed clay at the mine is done in Dorr mixers under constant agitation.

The mine, located approximately 9 miles west of Sandersville on the Deepstep highway, consists of approximately 685 acres. The plant, leased from Burgess Washington Clays, Ltd., is about one mile southwest of Sandersville.

As a PULP & PAPER editor discovered, Georgia clay in its original state is of exceedingly high brightness. Even sunglasses were insufficient to offset the reflected glare of the clay at Thiele's plant. This editor also found out, to his chagrin, that a dark blue suit is not recommended apparel at a clay plant.

HOW THIELE PLANT OPERATES—In slurry form at the plant, clay is flowed through two identical systems of troughs to settle out sand and mica. Floating debris and some mica are retained on the 200-mesh screen wire.

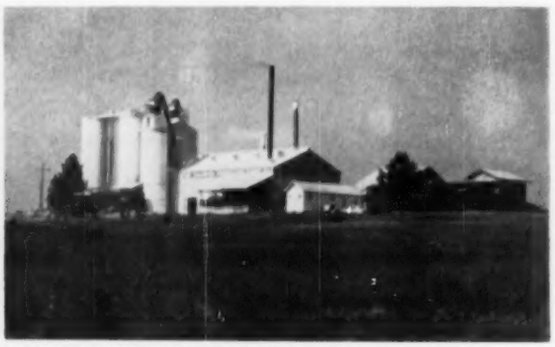
The slip then flows to settling tanks where it is allowed to settle sufficiently long so that material still in solution has the proper particle size. This material is known as the coating grade of clay.

During settling a hard cake is formed in the bottom of the tank. This is removed by blasting with high-pressure hose and washed into a separate system where it is treated with alum to flocculate it. This is known as filler clay.

Coating clay is bleached just as are some grades of pulp.

In Thiele Kaolin's plant, coating clay is flocculated with acid and

CALCINING PLANT of Burgess Pigment Co., at Sandersville, Ga., about 40 miles east of Macon, Ga., where Burgess Iceberg Pigment is made.



THIS CLAY PLANT of Champion Paper & Fibre Co. is on road to plant of Thiele Kaolin Co., where PULP & PAPER editor leaned out of car window to get this photo.

flow your bulk chemicals

like Buckeye Cellulose *does with* The AIRVEYOR®

Once again, the Airveyor goes into service in the pulp and paper industry—this time in the 25 million dollar plant of the Buckeye Cellulose Corporation, Foley, Florida, subsidiary of the Procter & Gamble Company. This thoroughly modern plant has a capacity of 300 tons of dissolving cellulose pulp per day.

Incoming mill-supply chemicals are handled by two Airveyor conveying systems. One system unloads salt cake from box cars and delivers to a storage bin at rate of 10 tons an hour. The same system also conveys from a pulverizer discharge and delivers to a service bin in the recovery building. The second Airveyor unloads alum and pebble lime from either box or hopper-bottom cars and delivers to a storage bin at rate of eight tons an hour.

The pulp and paper industry has learned by experience that Fuller Company is able to engineer and build equipment that will serve them for many years, at the lowest operating and maintenance cost. This is attested to by the many satisfactory installations in operation. Individual company purchases range from one to as many as twelve systems.

You should get all of the facts on the Airveyor. This specialized system, developed by Fuller, with many years of experience in conveying with air, can save you many a dollar, day in and day out. Why not have a Fuller engineer make a study of your conveying problems—it will cost you nothing.

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DRY MATERIAL CONVEYING SYSTEMS AND COOLERS . . . . PREHEATERS . . . . COMPRESSORS AND VACUUM PUMPS . . . . FEEDERS

ASSOCIATED WITH THIELE KAOLIN. GEORGE F. BLASIUS (left), Tech. Dir. of Burgess Pigment Co., an affiliate. The latter buys Thiele spray-dried clays and processes it in their calcining plant adjacent to Thiele's plant. ROBERT THIBIDEAU (right), Asst. Sales Mgr. of Burgess Pigment.

bleach is added to improve the color. From storage tanks clay is pumped under pressure to filter presses where water is forced out through a filter cloth to the surface of the press leaf. The cloth holds the clay which forms a hard cake at about 65% solids. These cakes are fed into an extruder which breaks it into small lumps and a conveyor belt moves it to the rotary dryer. Dried clay is then discharged onto a conveyor system which loads it directly into the cars for shipment to Thiele Kaolin customers.

Thiele Kaolin Co. produces spray-dried, water washed coating clays.

BURGESS IS NEARBY—An affiliate, Burgess Pigment Co., has offices adjacent to Thiele's plant where Burgess "Iceberg" pigment, a calcined kaolin, is produced. This is an anhydrous type aluminum silicate white pigment with a GE brightness of 90 to 92. It is used because of its brightness for dull coated papers, said Malcom Burgess, sales manager.

"Iceberg" pigment has also been found satisfactory as a white filler when incorporated in beaters during manufacture of boxboard, reports Robert Thibideau, assistant sales manager, thus eliminating more costly pigments and reducing amount of coating necessary for the desired color.

Burgess "Iceberg" is also used where brightness is of primary concern.

7 Sons Follow Dad's Papermaking Footsteps

The seven brothers of the Critzer family might wear a crown as one of the "royal families" (to use a show business term) of the pulp and paper industry.

All seven of the brothers are either employed in some facet of the paper industry or have worked in it at one time. One sister is married to a contractor.

The Critzers come by their trade naturally. Father Critzer, who died two years ago, retired from the West Virginia Pulp & Paper Co., Covington, Va., at the age of 74.

Dennis Critzer, 53, oldest of the eight, is superintendent of the board mill of Puget Sound Pulp & Timber Co., Bellingham, Wash.

Luther Critzer, 49, is paper mill superintendent of the Los Angeles plant of Container Corp. of America.

Brother Bill, 47, strayed into the Sun Oil Co., Marcus Hook, Pa., after years as a papermaker.

Hencil, 45, is machinetender at the Northwest Paper Co., Cloquet, Minn.

Ed Critzer followed in his father's footsteps and is machinetender at West Virginia mill at Covington.

John Lewis, 43, formerly with Container Corp. of America at Wilmington, Del., is now with General Manufacturers.

And Herman, the youngster of the family (he's 38) is machinetender at Camp Manufacturing Co., Franklin, Va.

Represent U.S.A. In United Nations

J. P. Weyerhaeuser Jr., president of Weyerhaeuser Timber Co., has been appointed as United States delegate to the United Nations Timber Committee. He attended recent meetings in Switzerland.

Laird Bell, Weyerhaeuser director, has been named an alternate to the United States delegation to the United Nations general assembly, which he will now attend. He is one of 5 U. S. delegates and 5 U. S. alternates.

DR. ARTHUR N. PARRETT – announces research expansion. Says Shelton, Wash., research will continue in full force, with new center in Whippany, N. J.

Rayonier Starts To Build Research Center In Jersey

Rayonier Inc. will establish a new research center on an 82-acre site at Whippany, N. J., as a further expansion of its scope of research, it is announced by Dr. Arthur N. Parrett, vice president in charge of research and development. Construction of a 32,000 sq. ft. laboratory has started.

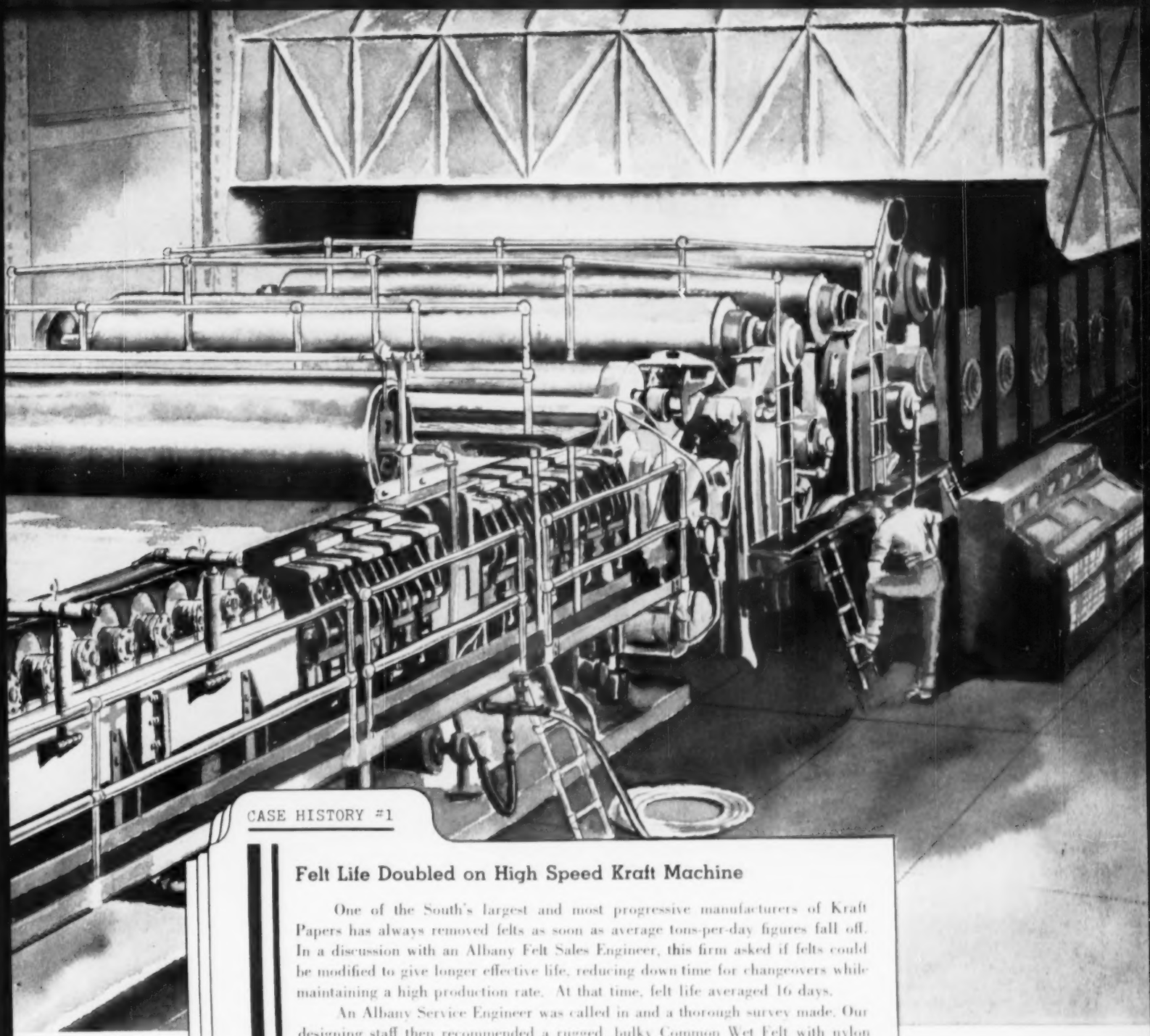
The chemical cellulose firm now has research facilities concentrated at Shelton, Wash., where 150 scientists and technicians are employed in its Olympic Research Division, Dr. Parrett said. It will continue in full force. The New Jersey expansion will be known as Rayonier's Eastern Research Division.

Promotions at Camas

KEY MEN of Plant Engineering and Maintenance departments at Crown Z's Camas, Wash., plant receive promotions and new titles in recent reorganization. (Above, l to r) DON PLATT, former Project Engineer for Services, becomes Engineering Supervisor; A. O. MUENCH, Senior Engineer, now Project Engineer for Processes; GEORGE BAILEY, formerly Process Engineer for Paper Machines and Finishing Rooms, is Project Engineer of same operations; MILES CADY, now Assistant Superintendent of General Maintenance, was former General Supervisor of Departmental Maintenance and Riggers; HOWARD RONDEAU becomes Foreman of General Mill Maintenance and Pipe Shop.

Other Camas Promotions

TOM LEEDHAM (left), Supervisor of Industrial Engineering at CZ Camas since 1951, has transferred to Crown's San Francisco headquarters as Assistant Manager of Industrial Engineering. RUSSELL LAWTON (middle), Division Industrial Engineer of CZ West Linn mill, succeeds Mr. Leedham at Camas. RICHARD G. CARTER (right), Camas Senior Industrial Engineer, was promoted to Industrial Engineer of West Linn division.



CASE HISTORY #1

Felt Life Doubled on High Speed Kraft Machine

One of the South's largest and most progressive manufacturers of Kraft Papers has always removed felts as soon as average tons-per-day figures fall off. In a discussion with an Albany Felt Sales Engineer, this firm asked if felts could be modified to give longer effective life, reducing down time for changeovers while maintaining a high production rate. At that time, felt life averaged 16 days.

An Albany Service Engineer was called in and a thorough survey made. Our designing staff then recommended a rugged, bulky Common Wet Felt with nylon content and chemical treatment, to be used interchangeably on first and second Press positions.

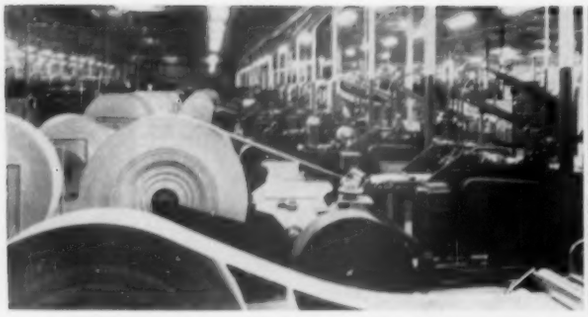
RESULTS: One year later, average felt life had increased to 19 days. With this new felt it was then possible to make further improvements in machine operating conditions. Today, figures show an average felt life of 32 days, with felt cost per ton cut to half the original figure and average production per day substantially increased.

For improved felt performance on your machines, call in your Albany Felt Sales Engineer. His analysis of your problems, together with the efforts of the industry's top team of Service Engineers, Designers, Research and Laboratory Specialists, will bring you the felts you need to produce "more saleable tons per day!"

ALBANY FELT COMPANY

"THE WORLD'S LARGEST MANUFACTURER OF PAPER MACHINE FELTS"

MAIN OFFICE and PLANT, ALBANY 1, N. Y. Other plants: Hoosick Falls, N. Y., No. Monmouth, Me., Cowansville, Quebec



AT SUTHERLAND'S new South Side Plant, Rodeo and Vu-Mor trays are made on this machinery.

DAILY TURNOUT of picnic plates runs 300,000 decorated and 2,000,000 automatic—some in cellophane-window boxes.

PAPERBOARD is processed into finished cups in this department at a rate of 1,500,000 million per day.

INSIDE UNDERCOVER loading of railroad cars and trucks at docks is convenient feature of new Sutherland plant.

New Plant for Sutherland

Paperboard producer builds new plant in Kalamazoo for fast growing operations—care in design pays off

● Sutherland Paper Co. has a new $750,000 South Side Plant in Kalamazoo, shown in pictures on this page.

This major producer in the paperboard world was getting too crowded for its ten divisions—it started with one in 1917. Now in the South Side Plant, it has a new 460,480 sq. ft. brick and steel structure of ultra-modern design. It is on a 10-acre tract.

It gives separate territory to can plant and specialties, provides inside loading docks and railroad lines, and is cleverly spaced with supporting pillars so that machines can be placed without loss of valuable area.

The company says because of inside loading, employes in that department lost no time due to illness this year. Some 20 to 25 trucks are loaded every day on air-hoist platforms.

Production flows from raw materials storage to specialties, finished goods and finally the warehouse. Decorated cans go directly from production into boxcars. Rodeo board, butter chip, cups and plates and other products are made here.

TOP MAN AT SOUTH SIDE PLANT. Looking things over in entranceway of new plant is RICHARD DOZIER, Supt. of South Side Plant. He is son of industry-famed former Rhinelander Supt., late LEWIS DOZIER.

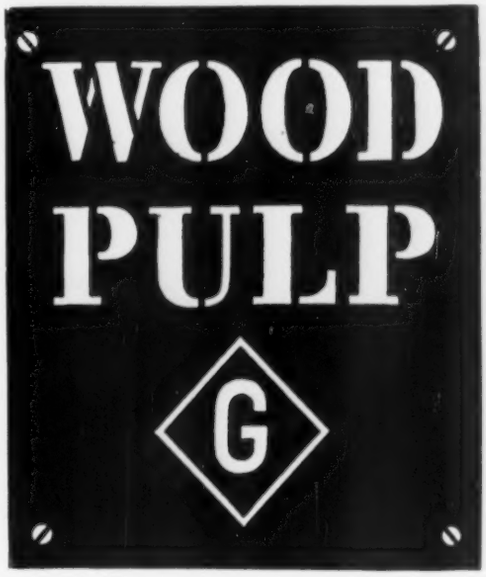
DICK DOZIER IS SUPT.—Richard Dozier, son of the late industry-famed paper mill superintendent, Lewis Dozier, is the new South Side Plant superintendent, with complete charge over the entire division. His father was superintendent at Rhinelander Paper for many years, the family living in Rhinelander since 1928. Before that, Brooklyn-born Lewis Dozier worked with Riegel Paper Corp. and Westfield River Paper Co., making glassine in New Jersey and Massachusetts. His widow, Richard's mother, remarried in recent years to a prominent Wisconsin city official.

WILLIAM RACE (left), is President of Sutherland Paper Co. **AL L. SHERWOOD** (right), is Vice President in charge of Engineering.

Sutherland has two other plants at Kalamazoo: The big 4-machine North Side Plant, where Glen Sutton is superintendent, and the East Side Plant, where Arnold Weller is superintendent. Its production is close to 600 tons a day, making coated news, various lined chipboard, butter carton, ice cream pail, oyster pail stock, etc.

Heading this enterprise is L. W. Sutherland, chairman, and William Race, president. G. E. Graham, Al L. Sherwood, L. W. Sutherland, Jr., and J. T. Kirkpatrick are vice presidents. E. W. Smith is secretary-treasurer, Martin Galbraith is technical director and chief chemist, L. F. Bunde is chief engineer, D. D. Bachelder is purchasing agent, and C. L. Fenstermaker is traffic manager.

Established 1886



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JOHN RUSKIN

At every turn paper performs new functions and raises standards of convenience to new heights. The vigor and wisdom of our Pulp and Paper Industry enriches its raw material with qualities that yesterday were dreams, but today are proud facts.

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New High "Muckamucks" of Northwestern Division

Left to right: JOHN McPHERSON, Asst. Mill Mgr., Mosinee Paper Mills, new Chairman; PAUL WEST, Thilmany's Pulp Supt., new Trustee; JOE JENKINS, Northwest Paper Co., First Vice Chairman; A. H. BUNKS, Consolidated WP&P at Appleton, Second Vice, and GUS KLAUS, Marathon of Green Bay, who turned over seat to Mr. McPherson.

How Automation Aids Workers

Northwestern Superintendents hear that it will broaden jobs and make conditions in mills better all around

● Automation in industry will bring better working conditions and generally improve the industrial climate in America.

A University of Wisconsin professor, Richard Sullivan, brought this message to the recent 1955 Fall meeting of the Northwestern Superintendents Division which brought 275 delegates to Green Bay, Wis., from 5 states and Ontario.

He said automation will also broaden the jobs and responsibilities of workers, giving them more importance in mill affairs. It also will more readily pin-point managerial responsibility, he said.

NOISES IN MILLS—Dr. E. G. Meiter of Employes Mutuals of Wausau, Wis., discussed the damaging effects of mill noises and recommended ear muffs.

Paper machine builders and mills are working on less unpleasant ways to abate noise nuisance, however, and for latest word on what they are doing see PULP & PAPER articles on page 92, Aug. 1955 issue, and page 65, June 1955 issue.

A movie on union bargaining, an entertaining newspaperman dinner speaker and the award of the Bolton & Sons essay contest first prize for the division to Elroy Steinmetz of Kimberly-Clark were other highlights. Joe Steiner, Bolton & Sons representative, Appleton, Wis., made the award.

Gus Klaus, of Northern Paper Mills Div. of Marathon, turned over the chairmanship to John McPherson, Mosinee Paper Mills, for the next year. Paul West of Thilmany succeeded Harold Skinner of Marathon as trustee. First vice chairman is now Joe Jenkins of Northwest Paper; second is A. H. Bunks of Consolidated; and secy.-treasurer is L. M. Gibson, Flambeau Paper.

A $10,000,000 Shopping List for Nepco

NEKOOSA-EDWARDS PAPER CO., with sulfite and kraft pulp and paper mills in Port Edwards and Nekoosa, Wis., does a big business as our story reveals. Here is J. K. ("VAN") VANATTA, Manager of Purchases, for Nepco, tending to this big business with his Secretary, SUE CLEVELAND, at Port Edwards headquarters.

NEKOOSA-EDWARDS Paper Co., with woodlands operations, and sulfite and kraft pulp mills and 9 paper machines in its two Wisconsin operations, has a $10,000,000 shopping list. This is the average amount of money spent every year by its purchasing department headed by J. K. (Van) Vanatta.

It is a typical purchasing list of a major operation in this industry, of which there are many others like Nepco—many are about the same size, quite a few are much larger.

Nepco News discovered this money is spent on many things from hairnets to sewing needles! (The hairnets are for girls in the finishing room and sewing needles are for dryer felts.)

Of course, big machinery, locomotives, chemicals in large supply, etc., must be purchased. It is Mr. Vanatta's responsibility and that of his assistants to buy the required products for the required purpose at the right time, at the best price and in the most economical quantity.

They issue 9,000 purchase orders each year.

These cover 20,000 items.

There can be up to 140 different bits of information to gather for a single purchase.

Talc comes from New Hampshire; clay from Georgia; diatomaceous earth from California; wax from Texas; tree seeds from Austria; some paper machine wires from France. Almost every state supplies thousands of items.

Quarter-inch nuts have been bought at $.00125. Biggest items are almost $1,500,000.

Rust Man is Honored; Bailey Names Division Head

GRANT I. BURNER (left), chief electrical engineer of Rust Engineering Co., Pittsburgh, has been appointed Vice Chairman of the Subcommittee on Paper and Pulp Industry of American Institute of Electrical Engineers for 1955-56, according to S. A. Bobe, Subcommittee Chairman, who is with Westinghouse Electric Corp., Atlanta, Ga. The subcommittee is a division of AIEE's committee on general industry applications. A subcommittee meeting will be held at the TAPPI Engineering Conference at Houston, Tex., Nov. 6-8.

G. L. HARMAN, JR., Manager of the Milwaukee district office, Bailey Meter Co., has been named to direct the company's Pulp & Paper Division, with headquarters in Cleveland. Graduated from Rensselaer Polytechnic Institute in 1937, with a bachelor's degree in mechanical engineering, he joined Bailey at that time.

Weyerhaeuser Plans in Oregon

Weyerhaeuser Timber Co. has filed application with Oregon state for permit to take water from Tenmile Lakes, as a preparatory step to possible mill location in the Coos Bay-North Bend area of Southwest Oregon where one of the company's newest sawmills is located.

Progress Has a Steel Hand

Dominion power cranes and shovels—on crawlers, trucks and rails—mould the nation's progress.

"Steel hands" are pushing back the frontiers in this great era of Canadian expansion . . . geared to serve their owners in mine and city, factory and utility. Dominion power cranes and shovels are in the forefront of the nation's progress . . . from coast to coast . . . clearing ground, digging, loading, carrying, building . . . serving today — designed to meet tomorrow's problems.

Dominion Engineering Company, Limited

Montreal, P.Q.

ST. REGIS AT TACOMA WAS HOST MILL to Coast TAPPI. S. P. ("Ted") STRAYER (middle, front row) of St. R's pulp department was Moderator. Here he is flanked by his four program speakers. Clockwise from Mr. Strayer are OTTO HUDRLIK, Flox Co.; ROLAND STANTON, Ketchikan Pulp; LOU KOTNIK, Weyerhaeuser kraft, Everett; and HERMAN AMBERG, Natl. Council for Stream Improvement.

SNAPPED BY PULP & PAPER while talking over a problem were these officers of Pacific Section TAPPI: JOHN McEWEN (right), Technical Director, Weyerhaeuser kraft mill, Everett, Wash., who is Chairman; BEN BRIGGS (left), Rayonier Inc.'s Research Division, Shelton, Wash., Vice Chairman; and BOB SMYTHE (center), Ray Smythe Co., Portland, Secy.-Treas.

New Information on Process Water

● An abundant and cheap resource—yet invaluable and indispensable—water and its uses present endless problems in the pulp and paper industry. Four aspects of water use were discussed Sept. 29 in Tacoma, Wash., at a Pacific TAPPI Section meeting.

Louis J. Kotnik, project chemist at Weyerhaeuser Timber Co. kraft mill in Everett, Wash., told how they have reduced costs in treating their daily required 26 million gals. of water by use of caustic and alum as flocculating agents in removing dirt and color. A lime-alum system was chosen originally when the plant opened in 1953. The savings result from the ease in handling a liquid alkaline system and lower maintenance involved. They also found that use of sodium alkalizing agents lowered hardness of the water and was therefore an additional benefit.

Comparative studies showed caustic and alum cost 40% of lime-alum, and sodium aluminate was 37% of lime-alum. Different combinations studied were sodium aluminate, sodium hydroxide and lime, each used with alum to form a floc. While all were found to give good results, certain local conditions tipped the balance in favor of the caustic.

The chemical cost of sodium aluminate would appear to run less than the caustic. However, because it is received at the mill in solid form it necessitates extra handling costs. In addition, maintenance of the mechanical dry-feed system runs higher. Liquid caustic can be gravity fed and easily metered. Large supplies are used in the mill's bleach plant and it is readily available.

Mr. Kotnik, who authored the paper along with George Hansen, chief chemist at Weyerhaeuser Kraft Mill, Everett, stated that they can easily switch to either of the dry chemical and alum systems, although they plan to use lime and alum as standby because for long periods, even several years, the lime in sacks will keep better. Mr. Kotnik also stated that significant price changes in the chemicals would prompt them to revaluate choice of floc agents used.

CORROSION IS A PROBLEM– Corrosion, which in pulp and paper manufacture is an ever-present problem continually prompting new methods of control, costs the U.S. as a whole $5½ billion annually. Otto L. Hudrlik, The Flox Co., quoted this figure in Tacoma, then proceeded to give some practical solutions to the specialized proposition of condensate corrosion control.

He said that water (especially hot) and carbon dioxide are two important causes of condensate system corrosion, and in fact account for about 90%, he estimated, of all damage. In a properly operated system it is likely that there will be a 1000 to 1 ratio of CO_2 to O_2.

A deaerating heater, Mr. Hudrlik stated, is an essential part of pretreating water, since it is very seldom that chemical addition can take the place of equipment. He described the comparatively recent advent of volatile amines and film-forming chemicals for corrosion control.

"These substances have the property of vaporizing with the steam so that excellent distribution is obtained in the entire steam system," Mr. Hudrlik said. Feed can be into the feedwater, direct to boiler or in steam going to a special part of the process; feed needs to be continuous and adequately controlled.

"Volatile amines are alkaline materials which neutralize the CO_2 present in the steam, and by increasing the alkalinity and pH of the condensate encourage the metal to form on itself a tightly adherent monomolecular protective film. This is essential because any successful method of corrosion control must set up conditions where a continuous protective film is formed on the metal by some method," Mr. Hudrlik reported.

BIG INCREASE IN WATER DEMAND SEEN–Industrial water demand in the Far West is expected to more than double in the next 20 years, said Dr. Herman R. Amberg, West Coast resident engineer for the National Council for Stream Improvement. He said that industry's needs must be given as much attention as irrigation but added that more reused process water will be needed, e.g. reuse of white water, especially in board mills, and in sulfite and kraft mills for washing pulp. He forecast a decrease in the water needed to make a ton of pulp and said that new methods of saving water will result in the selection of pulp millsites that have previously been overlooked. One example cited is Scott Paper Co., Everett, where white water from the paper machines is used in the hydraulic barker.

WATER USE IN ALASKA–Several staff members of Ketchikan Pulp Co. attended the TAPPI conclave, including Roland J. Stanton, who has charge of water storage and treatment at the big Ward Cove mill. As a program speaker, he outlined the many details, physical and chemical, in the KPCo. water system.

Mr. Stanton said the plant uses 30 mgd of treated water and 14 mgd of untreated. The water generally has low color and solid content. Water source is 13.2 sq. mi. of water storage

COLUMBIA RIVER PAPER MILLS
Vancouver, Washington
installs another
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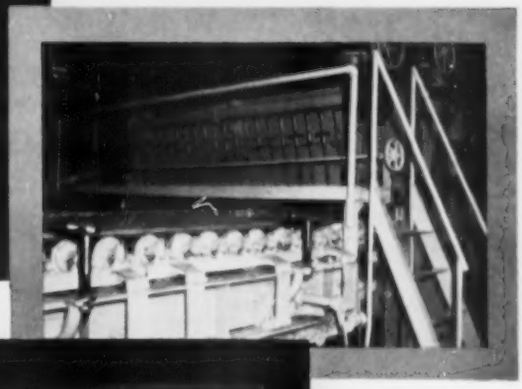

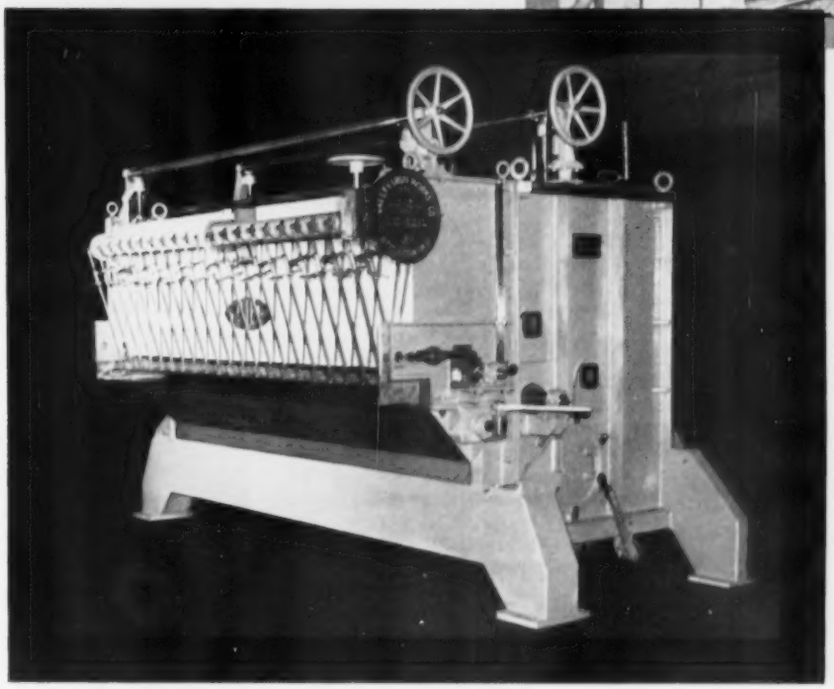

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in man-made and natural lakes in the mountains near the mill. The supply is considered highly adequate; a 50-day dry spell one time used but 1/3 of the available supply.

Mr. Stanton revealed one fact that caught the interest of the TAPPI group: they draw their water from whichever level of the lake has the lowest color. The water averages, on a year-round basis, 4 to 6 parts per million of color. From 2-14° C. is the temperature range.

Water is transmitted from lake to treating plant in a wood stave pipe, thus avoiding metal corrosion. No man is needed at the dam, but the site is inspected twice weekly. They clean the travelling water screen once per day.

In the filter plant, one man on one shift per day handles the work. The shift foreman is otherwise responsible.

One man can wash the settling basin in four hours. Extensive stainless steel piping is used in the mill's water system to avoid additional contamination.

Predicts More Latin American Pulp

● Dr. George Jayme, director, Institute of Cellulose Chemistry, Technical University, Darmstadt, Germany, during a tour of U.S.A. paper industry centers, forecast more hardwood pulps will be made in Central and South America.

In talks in several cities, he traced his experiences in Australia. He said they are using young-growth Eucalyptus now, whereas in the past it's been mostly old growth and partly-decayed trees, and this changeover means a different approach in the manufacturing end.

He noted the U.S. chemi-groundwood mills are making great strides in pulping young growth, and he predicted more and better bleached semi-chemical pulps in future.

SMALL COUNTIES NEED BETTER INFO—Dr. Jayme was definite on one point: Many small countries are missing out on great technological advances when they do not take advantage of the best methods available to this industry. He indicated that if they did not have the desired raw materials available now, it would be more logical to procure the necessary pulp from other sources.

During his trip, Dr. Jayme attended meetings in Appleton, conducted seminars in Camas and Tacoma, Wash., visited Middletown, O., and toured Mead and Champion mills in Ohio. At Minneapolis he addressed 6000 members of the American Chemical Society. He addressed several TAPPI meetings. At Appleton he presented the German Mitscherlich medal to Dr. Harry F. Lewis of Appleton, vice president, Institute of Paper Chemistry. On the West Coast, his seminar subject was: "Properties of Wood Cellulose." Before staff of Rayonier, Inc., at Shelton, Wash., he read a paper on electron micrographs of fiber surfaces. On his way home he returned to Appleton to speak to students on sulfite pulping, and discussed new cellulose solvents at Brooklyn Polytechnical Institute.

DR. GEORGE JAYME, of Darmstadt, Germany, expressed great interest in developments in America since he left Canadian International Paper Co. in 1936 to return to Darmstadt. He predicts pulp boom in hardwood regions, notably Latin America and Africa.

SEES MANY CHANGES—It has been 19 years since Dr. Jayme was last in America, which was when he was with Canadian International Paper Co. from 1926 to 1936. PULP & PAPER asked him what changes he most noticed, and he mentioned the industrial development and general prosperity of the country. He expressed amazement at the very high tonnages (compared with Europe) and the seemingly endless supply of timber.

He said that they greatly need sulfite pulp in Germany but are unable to fill their own needs.

In papermaking machinery, he said the U.S. is ahead of Europe, especially in speed. However, he said that most new paper machines in Europe are built to fit into a certain situation, they are forced to make "special" products with whatever raw materials are at hand—hence speed and high tonnages are not required.

Dr. Jayme predicted more increased use of broadleaf species for pulp, especially in Central and South America and in Africa and in countries where reforestation is possible.

Report Mill for Nova Scotia

Hearst publishing interests are reported to be negotiating for the construction of a groundwood or newsprint mill in Sheet Harbor, Nova Scotia. This is a small fishing village near Halifax with access to considerable pulpwood timber.

GORDON B. ANDERSON (left), new President, and GEORGE T. DEXTER (right), new Executive Vice President of Puget Sound Sheet Metal Works.

Puget Sound Sheet Metal Works Announces Executive Promotions

Action at a special stockholders' meeting of the Puget Sound Sheet Metal Works, Seattle, Wash., approved realignment of four key executive posts.

Elected chairman of the board is Harry S. Bowen, former president and third man to head the firm in its 55-year span of operation. Named president is Gordon B. Anderson, former vice president. George T. Dexter moves up to the new post of executive vice president, and George K. Taylor, former secretary and production manager, becomes vice president in charge of production.

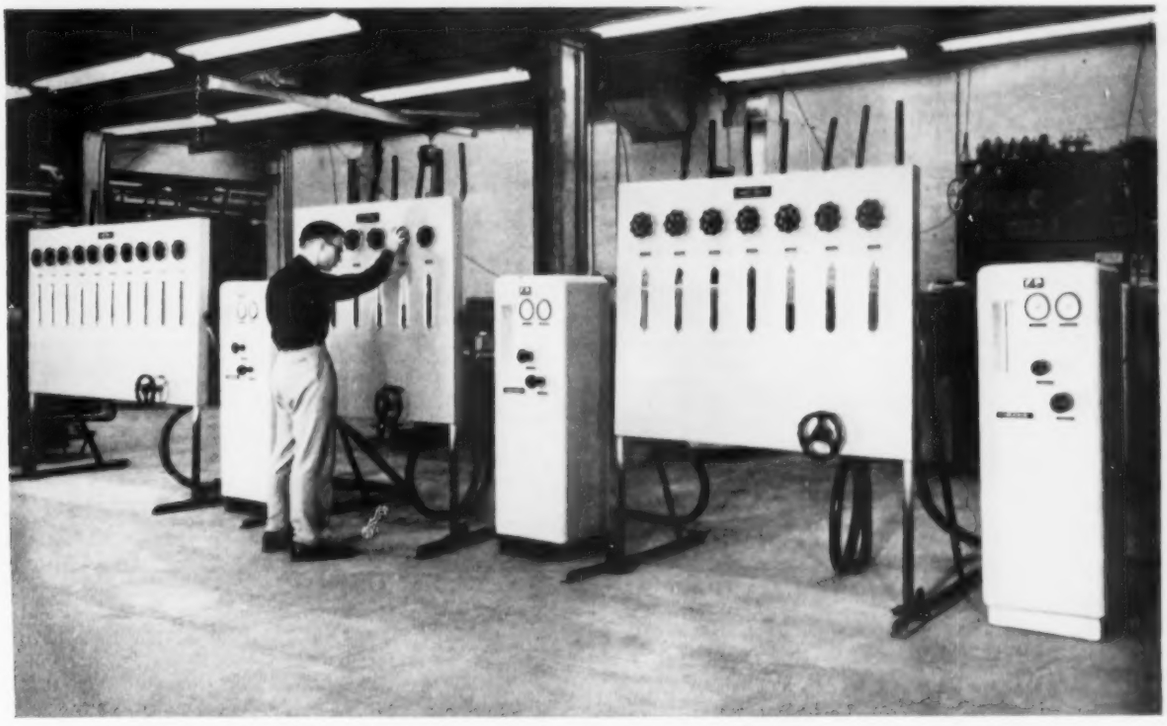
The modern 70,000 sq. ft. plant in Seattle specializes in the custom fabrication of products of steel, stainless steel, aluminum, nickel, copper, etc. used in pulp and paper processing.

Rust Elects Wilhelm; Infilco Promotes Kominek

FRANK L. WILHELM (left) has been elected Assistant Vice President of Rust Engineering Co. He joined Rust in 1936 as a Field Office Manager, in 1949 was promoted to Project Manager, coordinating engineering and construction in expansion programs of pulp and paper mills in the South. He will make his headquarters in Pittsburgh.

EDWARD G. KOMINEK (right) has been promoted to General Sales Manager of Infilco Inc. He will have general supervision of all sales representatives in this country as well as Canada, Mexico and other foreign countries. His headquarters will be at the main office in Tuscon, Arizona. He has been Assistant Sales Manager since 1950, and has been with the company since 1937 when he joined it as a research chemist.

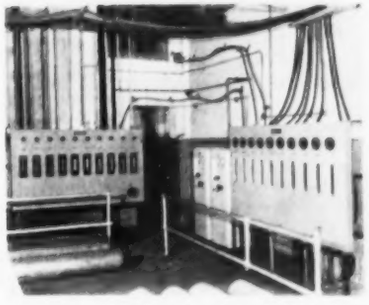
FP *complete process instrumentation*



F&P's packaged slime control system for the Gardner Board and Carton Co. being inspected prior to shipment.

F&P CUTS COSTS FOR PAPER BOARD COMPANY BY INSTALLING COMPLETE SLIME CONTROL UNIT

F&P Chlorinators and Distribution Control Panels produced as a packaged unit affording improved quality and lowered production costs



One chlorine system in operation.

Eliminating slime in the manufacture of paper board is a serious problem. To control this condition, the Gardner Board and Carton Co., of Middletown, Ohio, introduces a chlorine solution into the fan pumps used to feed dilute stock to the machines. This not only improves the quality of production, but also lowers operating costs by drastically reducing the quantity of fresh water required for the process, because chlorination permits recirculation of the water.

Faced with replacing its worn-out chlorination apparatus, Gardner Board and Carton Co. selected Fischer & Porter chlorination equipment because of the freedom from maintenance it offers. F&P, with its comprehensive design and engineering know-how, produced a complete integrated control instrumentation system. Costs were kept at a minimum, because the entire system was delivered by one firm. All instruments and fabrications are of F&P design and manufacture, and therefore of perfectly matched components. The entire operation is measured and controlled by F&P Chlorinators and F&P Flowrator Meters.

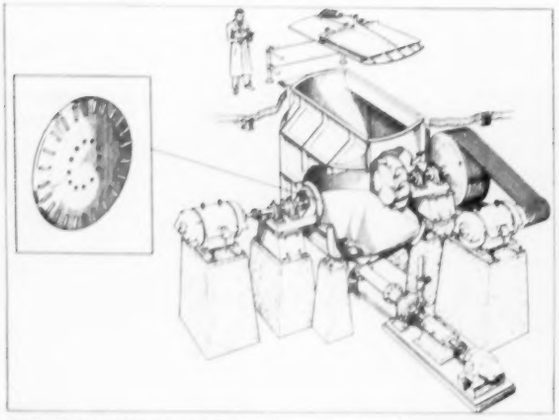
Write F&P about your problems. This will not place you under any obligation.

FISCHER & PORTER COMPANY

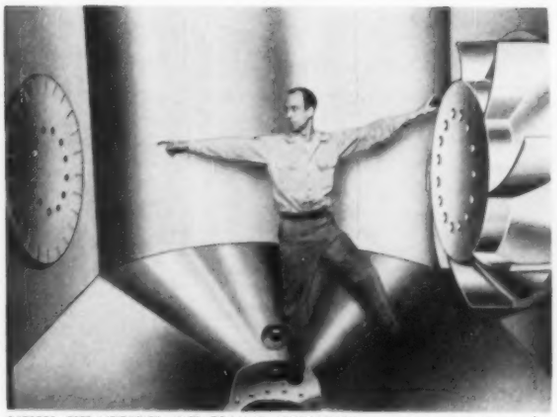
COUNTY LINE ROAD • HATBORO 10, PA.

Measuring, recording and controlling instruments
Centralized control systems
Data reduction and automation systems
Chlorination equipment
Industrial glass products

Sales offices in 32 American cities and in principal cities abroad



FOR ENGINEERS ONLY. This cut-away drawing, designed primarily for engineers yet simple enough for layman to understand, shows a typical Hi-Lo Pulper installation with high speed rotor on left and heavy-bladed low speed impeller on right.



NEW FEATURE OF HI-LO PULPER are two rotating elements. On right is heavy-bladed slow turning impeller for initially break-up of pulping material, high speed rotor at left hits the pulp mass at an extremely high speed, with its numerous cemented tungsten carbide blades.

15 Hi-Lo Pulpers Already Going to Mills

New pulping equipment, with two different types of rotating elements, meets swift approval in industry

• Within months after introduction of the new Jones Hi-Lo Pulper pulping equipment by E. D. Jones Co., acceptance has been swift. As PULP & PAPER went to press, a check revealed that some 15 mills have ordered this pulper; with several mills ordering more than one unit.

Some units already at work are at Shawano Paper Mills, Shawano, Wis., Brown Co., Berlin, N. H. (right under the famous Mr. Nibroc paper machine) and a large kraft mill in the Southeast.

What is so revolutionary about this new machine? What are its advantages? Here are answers as told to PULP & PAPER by Charles E. Vickery, vice president of E. D. Jones.

Some time ago, the company began a program to develop a pulping machine that would be the ultimate in efficiency and speed, simple and foolproof in design and modest in cost. Primary consideration was that an ideal pulper must completely defiber quickly and effectively, without destroying the strength of the material to be defibered.

In the Hi-Lo design, says Mr. Vickery, two primary functions of the pulper, namely agitation or circulation and defibering, are carried out by two different types of rotating elements each of which is designed to perform its separate function at maximum efficiency.

The first of these rotating elements is a large slow-turning heavy bladed impeller, designed to give initial break-up of the pulping material, and to produce extremely vigorous circulation of the pulp mass at high consistencies, and at low power expenditure.

The second element is a high speed rotor, directly connected to a standard motor of conventional speeds, such as 690 rpm or 680 rpm. This high speed rotor is a plain disc on the working face of which are numerous inserts of cemented tungsten carbide. These inserts project about ¾ in. above the surface of the rotor.

Function of the tungsten carbide blades of this rotor is to hit the pulp mass at an extremely high speed and thus efficiently defiber the material, whether it is pulp, broke or wet strength. It is a simple and inexpensive operation to replace these blades.

RELATIONSHIP OF BLADING IMPORTANT—The high speed rotor blading must be placed far enough apart so that pulp will flow around a given blade and be hit by the following edge. Height of the blading is also critical, Mr. Vickery remarks, because if the blading projects too far beyond the face of the high speed disc it begins to consume excessive power without adding to the defibering action. Thus, the high speed rotor is designed to defiber primarily and induces very little circulating action to the pulper.

This combination of high and low speed rotors secures a pulping machine that is extremely efficient and also quite flexible. In some cases where a very easy slushing material is to be broken down, the pulper may be run with only the low speed rotor turning. To defiber Kamyr pressed pulp or heavily sized broke or wet strength materials, the high speed rotor comes into action and produces a very rapid breakdown with complete fiber separation.

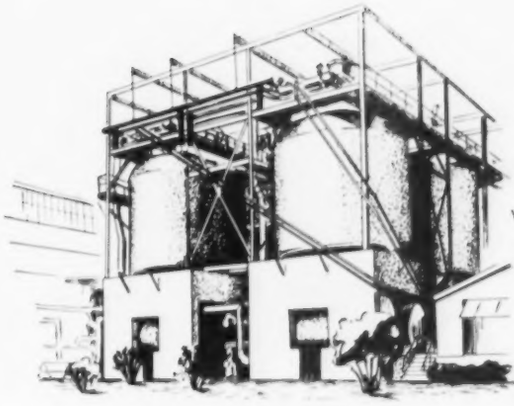
Adding to some of Mr. Vickery's statements, Dwight E. Jones, vice president in charge of engineering and manufacturing, says that tests have shown that the Hi-Lo Pulper completely defibers difficult materials without affecting the tear in any way. By incorporating two types of rotors in the Hi-Lo Pulper, each may be tailored for maximum efficiency. In conventional pulpers, he remarks, having single rotating elements performing both the circulating and defibering function, a compromise design is unavoidable. It is not possible to design a single rotor type of machine that will produce the ultimate in efficiency for both circulation and defibering.

The Hi-Lo pulper starts at units with 500 lb. batch capacity, progressing to the largest 8,000 lb. capacity unit.

New Stauffer Plant Serves Northwest Mills

Construction of a new liquid aluminum sulfate plant at Tacoma, Wash., is announced by Stauffer Chemical Co. It will include facilities for the shipment of liquid alum by tank car and tank truck to accommodate requirements of large-volume consumers.

According to company officials, construction of the plant was dictated by steadily growing demands of the pulp and paper industry in the Puget Sound area. This will be Stauffer's third western aluminum sulfate plant —others being at Portland, Ore. and Richmond, Calif. The Tacoma plant is to be completed in Oct. 1956.



Water Treating Plant

Crude Sulphur

for Industrial Use

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Producing Units

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How Chlorine Dispensing Problems Are Solved

Batch system at Neenah is accurate and reduces maintenance—can be used in batching size, alum, liquid SO

By William A. J. Mitchell
President, Central States Engineering, Inc.

WILLIAM A. J. MITCHELL, President of Central States Engineering, Inc., Appleton firm which has designed and engineered many postwar additions for mills, particularly in Lake States.

• A new chlorine batch dispensing system was recently installed at Neenah Paper Co., Neenah, Wis.

It is to be noted that the chlorine is dispensed on a weight basis without the use of conventional scales, which, when used, have always involved considerable maintenance and questionable accuracy due to the corrosion always present where chlorine is used.

The use of the force cell as a weight determining element and dynalog recorder-controller as the interpreting and scheduling means presents a very convenient method of pre-setting the exact weight to be delivered for a particular batch. It is only necessary to set the index to the proper weight required and throw the manual switch over to "automatic operation" to put the system to work.

It is also to be noted that the system is always wet—that is, all lines are filled with liquid chlorine. This greatly reduces corrosion in the line and cuts down the time lag common to long lines.

The system is protected by an expansion chamber as well as a relief valve which discharges to atmosphere. Upon completion of the batch the controlling instrument closes the control valve, stopping the flow of chlorine. At this instant a signal light is lit at the operator's location and an audible signal, such as a vibrating horn or a bell, is sounded to tell the operator that the batch delivery is complete.

When the batch has been run out the operator closes the valve at the point of delivery and vents the line beneath that valve by opening the valve which functions as a vacuum breaker.

The chart on the control instrument provides a check as to the exact weight of chlorine used, as well as the time increments involved.

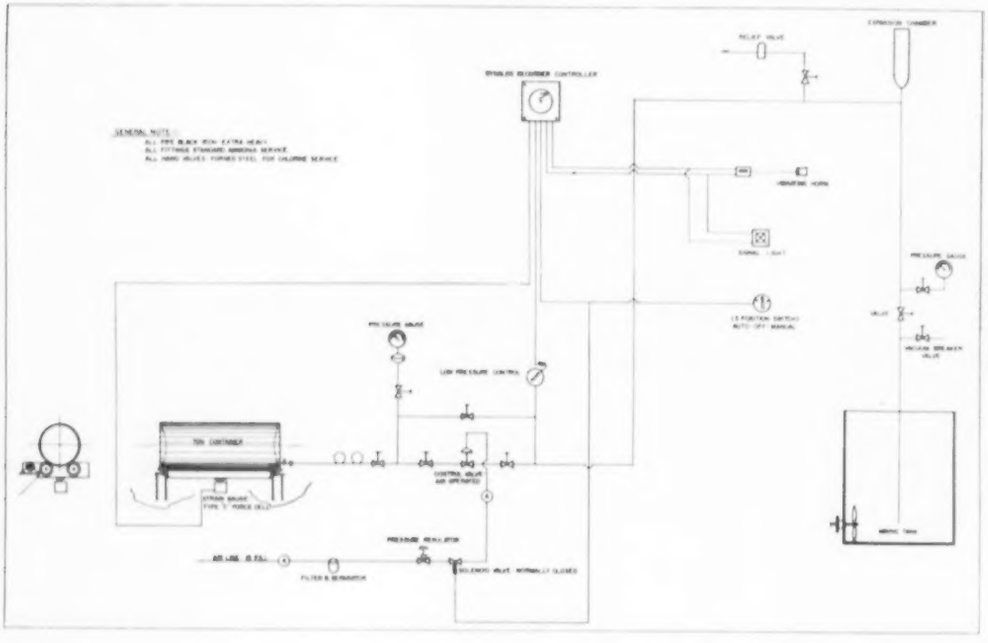
A "low pressure" safety device bypasses the instrument, closing the control valve automatically. This takes place when the line pressure drops to 30 psi and prevents:

1. Excessive chlorine discharge in the event of a broken pipe line, and
2. Siphoning back to the drum due to error in setting the tare, with the instrument calling for more chlorine from an already empty drum.

FEATURES OF THIS SYSTEM are:

1. Chlorine is delivered to the point of use on a weight basis.
2. A low-cost force-cell replaces the usual scale. No corrosion or maintenance problems arise with force-cells.
3. The system can be operated "automatically" or "manually." Manual finishing of a batch is easily done if required.
4. Controller-recorder permits "zeroing out" of the tare weight of the drums by turning a knob on the instrument cabinet.
5. Weight of chlorine left in the drum is shown on the chart at all times.
6. Weights drawn off on "automatic" or "manual" basis are shown on the chart with respect to the time of day.
7. Adjusting a knob on the instrument permits setting of the weight to be delivered.
8. Exact control is readily established after a brief experience.

Similar arrangements such as this can be used to good advantage in batching with size, alum, liquid SO_2.



DIAGRAMMATIC LAYOUT of chlorine batch system similar to new additions at Neenah Paper Co.

MEAD pulp

MEAD PULP SALES, INC. • Distributors of Wood Pulp

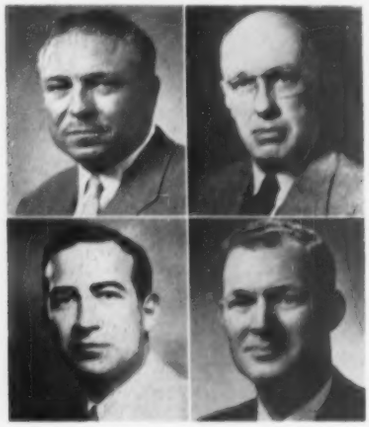
BLEACHED AND UNBLEACHED CHEMICAL AND MECHANICAL WOOD PULP

118 West First Street, Dayton 2 • 230 Park Avenue, New York 17 • 20 North Wacker Drive, Chicago 6

When Paul Bunyan heard that a swarm of locusts was headed for his prize forests, he met them halfway and head on, filled his mighty lungs and blew the entire horde well beyond the Arctic Circle.

This is the eighty-fifth incident from the fabulous life of Paul Bunyan. Reproductions are available on request.

PICTURE NEWS of the INDUSTRY



J-M Splitting Products Division

Johns-Manville is splitting its Industrial Products Division into Pipe Division, Packings and Friction Materials Division and Industrial Insulations Division. Gen. Mgr. of the new Pipe Division is ROBERT F. ORTH (top left), also elected Vice Pres. of Johns-Manville Sales Corp., it is announced by A. R. Fisher, President of J-M Corp. Mr. Orth had been Mgr. of J-M Transite Pipe Dept. since 1946. Other Division Gen. Mgrs. are Francis J. Wakem, Industrial Packings and Friction Materials, and Don L. Hinmon, Industrial Insulations.

Mr. Orth's staff includes T. R. TURNBULL (top right), Production Mgr., also elected Vice Pres., J-M Products Corp., and GEORGE R. R. WAHL (lower left), Merchandise Mgr., and JOHN H. GOODWIN (lower right), Gen. Sales Mgr., elected Vice President of J-M Sales Corp.

In Far West and Southwest

GUS A. SPORRE (left), for past 16 years affiliated with the industry—the first two in Midwest and last 14 on Pacific Coast—lives at 5924 Riverside Dr., Vancouver, Wash. He is now West Coast representative for four companies: Morningstar Nicol Co., Inc.; J. M. Huber Corp. clays; Hubinger Co. corn products; and Vapo Systems Co. moisture conditioning.

ERWIN WEEKS CRAWFORD, JR. (right), former teacher with Silsbee, Tex. school system, has been appointed official Plant Tour Guide at East Texas Pulp & Paper Co. He has organized a full tour which requires an hour and a half to complete.

New Positions in South

ARNOLD M. BROWN (left), is new sales representative in the South for Sandy Hill Iron and Brass Works, Hudson Falls, N. Y., according to Loren G. Gallup, Sales Mgr. Mr. Brown has been a Sales Engr. with Downingtown Mfg. Co., for 10 years, recently in the Southern states. Mr. and Mrs. Brown's home continues at 419 Price St., West Chester, Pa. He attended Univ. of Pennsylvania and Rocky Mountain Biological Institute in Colo.

HAMMEL-DAHL CO. of Providence, R. I. has opened a new sales office in Tulsa, Okla., under the supervision of new District Sales Manager, PAUL E. BOWLES (right), at 310 Thompson Bldg.

Appointed by Dorr-Oliver

LANCE CROSBY (left), a Washington state chemical engineer has joined Dorr-Oliver Inc., and will be process engineering specialist in their Stamford, Conn., headquarters. He was with Rayonier, Inc., in its Central Research headquarters.

RICHMOND M. STAMPLEY is Western Filtration Division Manager, with headquarters in Oakland, Calif. He will be in charge of the marketing of all Dorr-Oliver filtration equipment in 11 Western states.

Joins Salmonson

WALTER SALMONSON (left), Pacific Coast manufacturers' representative, announces that DONALD R. TOURANGEAU (right) has affiliated with him, to assist in handling DeZurik Shower Co. equipment from British Columbia to Southern California. For three years Mr. Tourangeau was Sales Engineer for DeZurik Shower Co. at Sartell, Minn. Prior to that he spent four years in technical departments of paper mills—W. C. Hamilton & Sons Co., Miquon, Penn., and Wausau Paper Mills Co., Wausau, Wis. The Salmonson office is at 2330 N. E. Thompson St., Portland 12, Ore.

More Pigments—Less Water

The paper coating industry is seeking ways to apply less water with pigments, and among many specialists in the thick of this kind of talk and work, are these DuPont veterans: ROY E. TROUTMAN (left), Sales Mgr., White Pigments, E. I. duPont de Nemours & Co., Wilmington, Del., and J. W. CRONIN (right), Mgr. Central States Pigment Dept., DuPont, Cleveland, O. In past, his work has taken him to mills, coast to coast.

Changes in Canada

B. V. SCHAUB and ERNEST HOFMAN, Vice Presidents, National Adhesives (Canada) Ltd., jointly announce personnel changes. Left to right: GERALD W. BURGOYNE, Technical Service Mgr., moves from assistant sales manager at Toronto to Technical Service Mgr., at Montreal, MICHAEL J. STASKO, has been transferred from Toronto to Vancouver as Technical Sales Representative for British Columbia and Alberta; MARC ARCHAMBAULT moves from Montreal to Toronto as Technical Service Supervisor; and ARTHUR BOURKE has been named to post of Technical Service Supervisor for Paper for all of Canada.

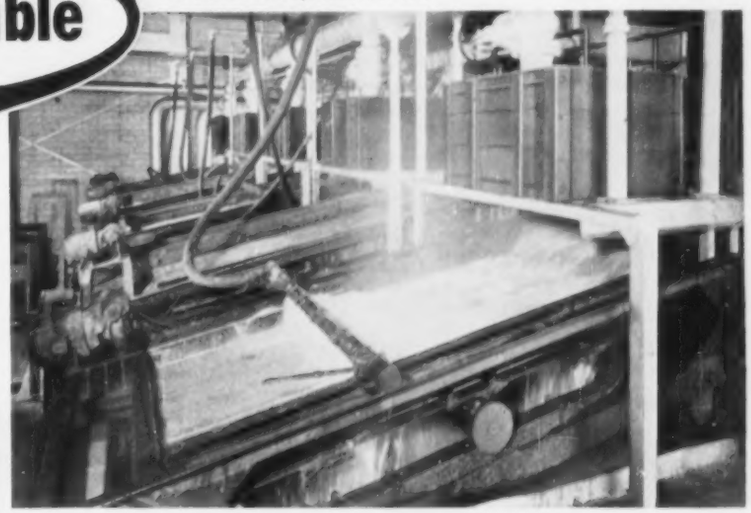
How your waste separation can be made...

less costly

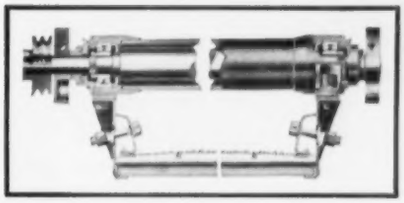
more profitable

LOW-COST ANTI-POLLUTION PROTECTION is provided by Link-Belt Liquid Vibrating Screen under hydraulic barker. Nearly 1000 gal. per min. are delivered to screen, which removes small bark solids before discharging water to river.

TOP PROFIT from reclaimed pulp is obtained with five Link-Belt Liquid Vibrating Screens, each equipped with a power-propelled travelling spray. Both dewatered pulp and clarified water are returned to the system for re-use.



LINK-BELT Liquid Vibrating Screens remove solids quickly, effectively



Fully enclosed, self-aligning roller bearing vibrator mechanism transmits vibration uniformly to deck. Amplitude can be quickly adjusted in 1/64 in. increments • Screen cloth supports are designed to prevent flow of liquid under cloth • Patented mounting adjustment maintains the correct tension so important with fine stainless steel cloth.

THROUGHOUT the paper industry, plants which formerly relied on slow, ineffective methods of waste disposal have reduced costs to a negligible minimum . . . have been able to successfully meet requirements of anti-pollution laws. Others having salvageable wastes now reclaim them at a profit.

Wherever relatively fine solids must be separated from large volumes of liquids, the efficiency of Link-Belt Liquid Vibrating Screens provides an economical answer. With their special deck which permits use of a very fine screen cloth . . . plus high-frequency, small-amplitude vibration—maximum solids retention and liquid passage is assured.

Call your nearest Link-Belt office for expert counsel on your screening problems. Or send for Book 2377.

LINK-BELT COMPANY: Executive Offices, 307 N. Michigan Ave., Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities; Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World. 13.951

LINK-BELT

LIQUID VIBRATING SCREENS

LAB TESTS AND MILL TRIALS PROVE IT!

Mersize RM dry means less dust!

Your beater room men will appreciate Mersize RM Dry because it is low in dusting, less irritating, not so sticky to handle.

Mersize RM Dry also delivers these other money-saving advantages:

High Efficiency—Against dry rosin size you will save 20% because Mersize RM Dry gives equal sizing with 40% less material.

Even against dry fortified sizes you save . . . one mill evaluation covering three months on six consecutive carloads of dry size proved Mersize RM Dry gives equal sizing on sulfite bonds, envelope and offset at a dollar savings of more than 10%.

Light Color—Mersize RM Dry is very light in color, resists darkening with age . . . produces high-brightness paper . . . comparable to the lightest rosin size.

Low-Foam—Remember that you get smooth operation with low-foam index Mersize RM Dry.

For further information on Mersize RM Dry, write Organic Chemicals Division, MONSANTO CHEMICAL COMPANY, Box 478-O-7, St. Louis 1, Missouri.

Mersize: Reg. U. S. Pat. Off.

CHECK LIST OF MONSANTO'S COMPLETE LINE OF FORTIFIED SIZES

Mersize CD-2
Concentrate, for use with rosin size

Mersize CD-2 Dry
Concentrate in dry form

Mersize RM 70%
Complete fortified paste size

Mersize RM 77%
Complete fortified paste size

MONSANTO
CHEMICALS—PLASTICS

SERVING INDUSTRY WHICH SERVES MANKIND

What's Doing at Grand Falls

Important changes and new additions expand capacities and improve operations of big mill in Newfoundland

• Big changes are being made at Anglo-Newfoundland Development Co.'s mills. During the past five years, the company has been carrying out a program of expansion and improvement that has already increased newsprint capacity from 575 tons to about 750 tons a day, and additional equipment is now being considered to effect a further increase to 800-850 tons.

The company's principal operations are at Grand Falls and Bishop's Falls, located on the Exploits River, about 11 miles distant from one another. One of the most extensive alterations recently carried out has been with a view to adding hydroelectric power, and at Bishop's Falls all grinders have been removed and the plant has been converted to a hydroelectric station. Six new 2700 hp S. Morgan Smith hydraulic turbines have been installed, together with seven 2250 kva 550 volt Westinghouse generators, with necessary switchgear, transformers, etc. These generators, with two other 2000 kva units, give the station a capacity of about 16,000 kilowatts, and while a small part of this is used at Bishop's Falls and Botwood, the bulk of the power is transmitted to Grand Falls over a 44,000 volt transmission line.

WORK AT GRAND FALLS—Mill operation is now concentrated at Grand Falls and a new runner has been installed there in one generating unit resulting in an increased power output of about 4000 hp. This generator now produces 26,000 kw.

In the grinder room at Grand Falls equipment has been renewed and now consists of 18 Waterous-Great Northern grinders, all fed with 4 ft. wood by water troughs. Ten of the grinders are driven in pairs by 5500 hp 250 rpm motors and eight are direct connected in pairs to 5500 hp 250 rpm S. Morgan Smith twin runner water turbines with speed control by a combination of Meyer and Woodward governors.

NEW PULP MILL ADDITIONS—One new all welded digester has been added, and two others installed as replacements, making in all five 16 by 54 ft. digesters with circulation systems, Hydro-heaters, and automatic controls. Capacity is now 250 tons sulfite per day. A new steam line to digesters has been installed to operate at pressure of 140 psi, with regulating valve and automatic de-superheater.

The acid recovery system has been improved and consists of brick lined steel storage tank, also lined steel low, intermediate, and high pressure acid accumulators, with new Ramen stainless steel heat exchanger.

New Jenssen acid towers have been added and a pyrites burning plant using the Dorr fluo-solids system has recently been put into operation. This will burn iron pyrites supplied by Buchans Mining Co. Ltd. and will have capacity to produce sulphur dioxide equivalent to that made by burning 30 tons of sulfur per day.

HOW WOOD IS HANDLED—During the storage season, wood in 4 ft. lengths is delivered to Grand Falls by river, rail and truck. From containing boom in the Exploits River above the mill it is removed from water, passed through barking drums and is distributed by water flumes partly to mill and partly to storage piles. In winter, wood is removed from piles by cranes and delivered by ground level flumes to woodroom and grinders.

ELLIOTT M. LITTLE, President of Anglo-Newfoundland Development Co., as well as Anglo-Canadian Pulp & Paper Mills, Quebec, and Gaspesia Sulphite Co. Ltd.

Work on a new wood handling system is now nearing completion. Log haul has been installed and four new 12 by 45 ft. drums have been added, making six drums in all with the necessary feed and sorting belt conveyors. Two new steel stackers have been erected, one has been rebuilt, and one brought from Bishop's Falls and re-erected. Overhead water flumes to three stackers have been completed, and it is expected that ground level flume will be completed shortly. This will convey wood from barking drums to one stacker, also supply woodroom and grinder room.

Extensive alterations are being carried out in the woodroom. One new 10-knife Carthage chipper has been installed, and a similar one is being rebuilt and relocated.

New conveyors are being installed using 48 in. belt to chippers, fed from sorting point at ground level flume and 36 in. belt conveyors from chippers to vibrating screen.

Future plans include the provision of a hot pond between sorting point and woodroom for the storage and defrosting of wood during winter operations.

New Installations Are Here

A PULP & PAPER editor took air view of Grand Falls when flying over Newfoundland in small chartered plane.

CHANGES ON MACHINES—Two paper machines, having wire widths of 124 and 134 in., have had four dryers added to each machine, also certain other improvements such as equipping felt rolls with anti-friction bearings. The original floor core drives were retained but variable speed direct current motors were installed to drive line shafts. These machines are operating at speed of 1000 fpm.

Two 156 and one 165 in. machines have been improved by adding six dryers to each, also anti-friction felt roll bearings, etc. Harland sectional drives were installed on each machine. They are now running at speeds of 1120-1160 fpm. Further alterations are scheduled for 1955-56, including increased screening capacity, new Dominion stainless steel lined slices, improved table roll bearings and baffles, also three main dryers and three felt dryers for each machine. Closed hoods and improved ventilation are being considered in order to further improve drying conditions.

Two 226 in. machines are being equipped in 1955 with new Dominion stainless steel lined slices. In one case, a Rotareed Deculator was installed some time ago and for this machine a stainless steel lined headbox is on

order. Plans are now under consideration for increasing speeds of these machines from present 1360 and 1470 to 1500-1600 fpm.

Vacuum pumps for suction couch and press rolls of all machines have been re-arranged and four new double units added.

NEW FINISHING EQUIPMENT—A Stadler Hurter roll wrapping machine has been installed in the finishing room and is wrapping about 375 tons of newsprint per day from five paper machines from which a cross conveyor has been installed. Improvements have been made to the general arrangement of the room and it is now proposed to extend cross conveyor to remaining two paper machines with the object of using wrapping machine for part of their daily production of 375 tons per day.

In order to machine wrap all newsprint production and to provide for maintenance time a second roll wrapping machine may be installed at some future date.

NEEDS MORE STEAM—Increasing newsprint and sulfite production and consequent increasing demands for steam are bringing about a condition that will require the installation of additional steam generating capacity in the not too distant future. A high pressure unit with capacity of 200,000 lbs. steam per hour may be considered with provision made for the future installation of a turbogenerator if required.

Crane Co. Salutes Pulp and Paper Industry

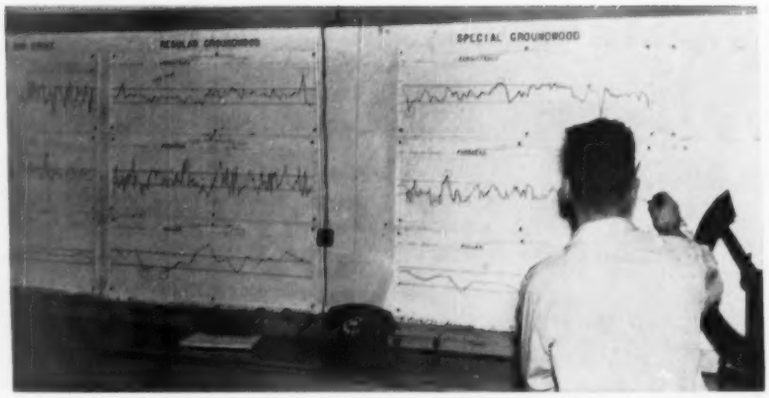
The pulp and paper industry and its part in the development of America are now being saluted in a "double anniversary" edition of "Valve World," an external house organ published by Crane Co.

The issue celebrates the 50th anniversary of the magazine and the 100th anniversary of Crane Co. and traces the highlights in the 100-year progress of many of the American industries with which Crane Co. has grown.

A sketch called "Pulp and Paper—Yardstick for Civilization," says:

"More strides have been made in pulp and paper during the past century than in all the previous years . . . Today, the mighty pulp and paper industry stands fifth in the U. S. industrial line-up . . . To feed the voracious appetite today's public has for paper, the industry is modernizing through every phase of operation."

As the flow of production steps up so does the critical importance of flow control, for which Crane, long experienced here, is providing valves and fittings.



PLOTTING QUALITY TEST controls on control charts at West Linn, Ore., Crown Zellerbach mill. This is in the Technical Control Dept.

Improving Statistical Control Methods

A MATHEMATICAL TOOL for upgrading quality and improving uniformity in paper manufacture has been in use at West Linn, Ore., mill of Crown Zellerbach Corp. for the past year and a half. Reed Hunt, vice president in charge of manufacturing, says West Linn is the "pilot plant" for testing the statistical quality control technique for C-Z.

Kimberly-Clark Corp., Neenah, Wis., Hammermill Paper Co., Erie, Pa., and Nekoosa-Edwards at Port Edwards, Wis., have had outstanding success with the statistical quality control method. Following a tour of inspection of mills using this method, the plan was introduced at West Linn.

E. H. Nunn, now manager at C-Z's Carthage, N. Y., mill and former asst. mgr. at West Linn, says it has proven "very successful" and Dr. Truman Pascoe of Nekoosa-Edwards urges that management interest itself in these methods and encourage them.

Statistical Quality Control is a mathematical method of analyzing operating data. It can be applied to any quality variable, whether it be mullen, basis weight, chlorine number, freeness, sheet size, or even control of putting labels on straight.

The upper and lower quality control limits of each variable are established by statistical methods on the basis of numerous tests. So long as subsequent tests indicate the variable is within these limits, the operation continues unchanged. When it goes over or under these limits the operation is considered "out of control" and corrective action is indicated.

The philosophy behind statistical quality control is that continuous control information be provided so that corrective action can be taken with a minimum of delay. It sees no virtue in "historical records" to be reviewed the following day. Large weekly charts, printed and plainly identified, are placed at 40 locations in the West Linn Mill.

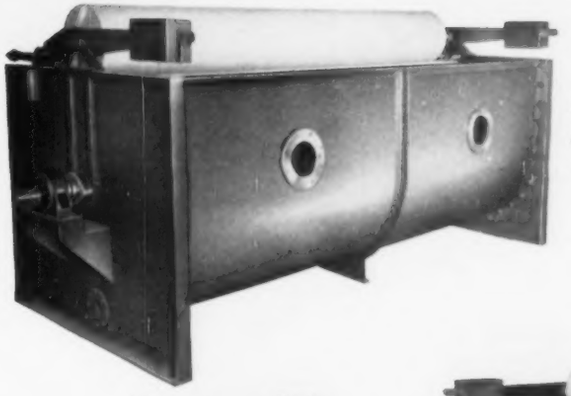
As each quality test is made, usually at half-hour intervals, the finding is promptly posted on the proper chart. Operators are instructed in reading the charts and can immediately recognize when the operation is beyond the established quality limits. They are instructed to take immediate remedial action when this occurs. In this manner, statistical quality control is on watch 24 hours a day.

In order to give other C-Z divisions the benefit of its experience with the special technique, West Linn made arrangements through the Portland State Extension Center for a series of conferences.

MILES MURRAY becomes Northwest Area Personnel Supervisor of Crown Zellerbach Corp.

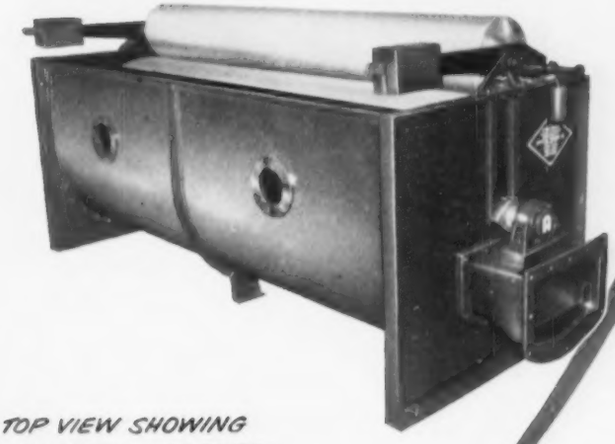
MILES MURRAY, long of various industrial relations positions in Crown Zellerbach Corp., was appointed Northwest area personnel supervisor at Portland effective Sept. 1. He started with CZ at Camas in 1930, transferred to San Francisco headquarters in 1937 and has been at Portland since 1940. . . . **J. D. MORGAN**, formerly assistant purchasing agent, was promoted to purchasing agent of Columbia River Paper Mills and Oregon Pulp & Paper Co. October 1. **C. J. FAHLSTROM** succeeds him as assistant purchasing agent.

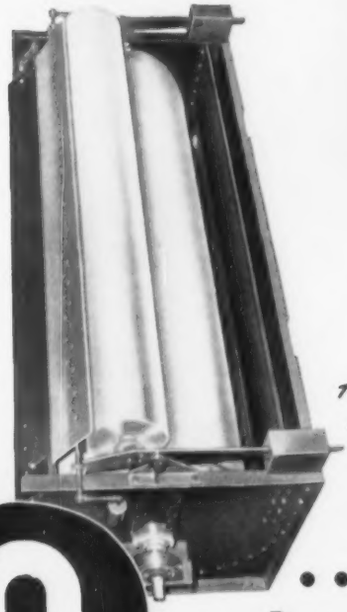
ANY WAY YOU LOOK AT IT...



VIEW OF END AND INTAKE SIDE OF COWAN DECKER

VIEW OF EFFLUENT DISCHARGE END FROM INTAKE SIDE





TOP VIEW SHOWING RUBBER-COVERED COUCH ROLL AND 48"DIA.– 131" CYLINDER MOULD

A ...the Cowan Decker shows its superiority!

COWAN DECKER PRODUCTION FIGURES:

35 tons/day — Groundwood
85 tons/day — Sulphite
100 tons/day — Kraft

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New Moss Point Manager

HARRY A. ROGERS is new Mgr. of IP's Moss Point, Miss., Mill. Graduate of U. of Florida, with I.P. in South since 1933, he had been Bastrop, La., Mill Mgr., since 1951.

Alaska Pine Dock Collapse

Settling of ground along the Woodfibre, B. C., waterfront recently caused the collapse of the dock and warehouse of Alaska Pine & Cellulose bleached sulfite mill, with damage estimated at more than $500,000. There were four lift trucks in the docks which collapsed and these were salvaged, but some 400 tons of pulp was damaged. Reconstruction has already been started, at a different, more stable, location.

Correction, Very Sorry

Three mills producing dissolving market pulp were omitted from that grade section in PULP & PAPER's World Market Woodpulp section in the WORLD REVIEW NUMBER. These mills are Enqvist, Kaukas and Rauma Repola (all of Finland) represented in the U. S. by Pulp Sales Corp., 230 Park Avenue, N.Y.C. 17. They were properly listed elsewhere.

CLAIRE TURNER is new sales manager for Appleton Woolen Mills.

Sales Head Named

Claire Turner has been appointed sales manager of Appleton Woolen Mills, Appleton, Wis., replacing Karl Oberreich, who has resigned from the company.

Mr. Turner, a 25 year veteran in the paper industry, has been with the Appleton company since 1950 as New England states representative and, since last April, North Central states representative. Prior to joining Appleton Woolen Mills he had been manager and superintendent of Pollock Paper Corp. He has also held paper industry management positions in New York and Maine.

The new sales executive is a member of TAPPI and American Pulp and Paper Mill Supts.' Assn.

How to Train Supervisors

"Meeting Production's Manpower Needs," published by American Management Association, 330 W. 42 St., New York 36, N. Y. (Price $1.75; to AMA members, $1.00), tells how progressive companies develop managerial talent.

Four case studies describe management development programs at Scott's Marinette Paper Co., Columbia Records, Heinz' Production Division, and Gary Steel Works. These programs, aimed specifically at the production group, provide new and useful ideas for the executive who is concerned with making the most of available manpower and developing needed managerial personnel.

Other aspects of management development are discussed by Inland Steel and Minneapolis-Honeywell executives.

Safety Awards

For the third consecutive year, Sonoco Products Co., Hartsville, S. C., has been awarded the highest recognition given by the National Safety Council. In 1952, 1953 and 1954 the company has received on behalf of its employes the Award of Honor. C. W. SUGGS, Safety Coordinator, is holding the plaque as Employee Safety Committee Chairman. CARROLL TAYLOR and Executive Vice-President C. W. COKER raise the Honor Flag.

CZ Agricultural Product

Production of another new chemical by-product derived from spent pulp liquor has been announced by Dr. M. W. Hearon, general manager of CZ's Chemical Products Division, Camas, Wash. The material, an agricultural mineral agent called GreenZ 26, was developed as a corrective for iron chlorosis, an iron deficiency of plants. It will be available for limited commercial uses during 1956 growing season.

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*Results will vary with feed and pressure conditions.

Pulp Washers • Evaporators
Filters • Digester Blow Condensers
Turpentine Condensers

ROMANCE IN CAREERS OF 2 LEADERS—Two British Columbia industrialists who made their fortune in pulp and paper and associated operations have made gifts totalling $1,500,000 last month for educational and cultural purposes. Donors were Leon Koerner, who recently stepped down as chief executive officer of Alaska Pine & Cellulose, now a Rayonier subsidiary, and whose gift totalled $1,000,000 and H. R. MacMillan, chairman of the board, MacMillan & Bloedel. The gifts were independent of each other.

Mr. MacMillan started his career as a government forester, launched his lumber export business in Vancouver 35 years ago and gradually built up one of the world's great timber empires, with a variety of processing plants.

Mr. Koerner came to Canada from Czechoslovakia. He owes his career in British Columbia to two unpleasant events—Hitler's aggression in Europe and Mrs. Koerner's mumps which she contracted during a world tour. While waiting for his wife to regain her health, Mr. Koerner, for years a successful forester and lumber operator in Czechoslovakia, became interested in British Columbia. When the cables continued to tell a grim story from his homeland, Mr. Koerner cast his lot with Canada.

BATTLE ON BUGS GOES ON—The battle of New Brunswick pulp and paper companies against the spruce budworm will probably continue indefinitely, according to Dr. R. E. Balch, head of the entomological laboratory, Canadian department of agriculture, a leader in the campaign since its inception. One or two additional airstrips will probably be built.

BIG PROJECT AT DRYDEN—When Dryden Paper Co.'s expansion program, representing expenditure of $11,600,000, is completed at Dryden, Ont., in 1957, capacity will be virtually doubled and a new product, bleached pulp, will be available for marketing. The company now produces groundwood and unbleached sulfate at the rate of about 72,000 tons annually, and this will be stepped up to 142,000 tons, according to E. Lorne Goodall, president and general manager.

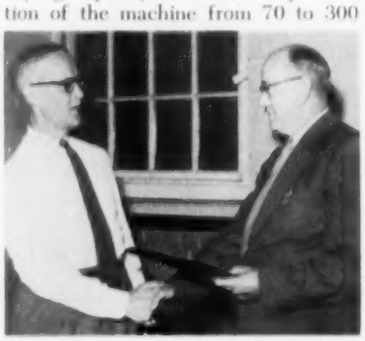
In addition to the bleach plant, a new woodroom and a new causticizing building are features of the modernization. The old batch system is being changed to the continuous settling system. The buildings, of steel and reinforced concrete, are being erected by Anglin-Norcross Ontario, Ltd., also carrying out work on washer room, screen room, etc. Raymond Concrete piles were used in the foundations of the larger buildings. A new office building is being erected.

SOME OF THE TOP EXECUTIVES of Rayonier, Inc., and Alaska Pine & Cellulose, Ltd., its affiliate, examining a container containing Rayflo. (L to r) WALTER KOERNER, Pres., Alaska Pine; CLYDE MORGAN, Pres., Rayonier Inc.; WILLIAM E. BREITENBACH, Exec. Vice Pres., Alaska Pine; Hon. RALPH CHETWYND, Minister of Trade and Industry for British Columbia; JAMES T. SHEEHY, Exec. Vice Pres. Rayonier.

Extension of the digester room is planned and an additional digester will be installed next year, three more in 1957 to bring the total number to eight 6-ton and four 14-ton units. A new boiler and another evaporator plant will be installed in 1957.

Rebuilding of No. 1 paper machine by installing the Kamyr process, Oliver sheet former and additional drying capacity will increase production of the machine from 70 to 300 tons a day. This transformation is being effected in stages while the machine is in operation, so there will be no interruption in production. Total daily capacity will be 340 tons by July, 1956, and 500 tons by July, 1957.

Dryden Paper Co. is an affiliate of Anglo-Canadian Pulp & Paper Mills.



Mill Honored for Safety Record

W. H. EMORY (left), manager of manufacturing pulp and paperboard, Fraser Cos., Edmundston, N. B., presents to R. B. McMURCHIE, mill superintendent, Fraser Cos., Newcastle, N. B., the Crabtree award won by the mill last year in safety record competition with the company's three other mills. The award was donated by HAROLD CRABTREE, chairman of the board.

POWELL RIVER NO COMPANY TOWN—Ever since Powell River Co. built its first newsprint mill in British Columbia more than 40 years ago, Powell River has been a company town, but that status ended when a plebiscite was held there recently. Residents of the surrounding area, with company encouragement and approval, voted 84% in favor of combining the various communities into one municipality, Powell River.

A NEW BY-PRODUCT PLANT—First major "payoff" from recent acquisition by Rayonier Inc., of 80% of Alaska Pine & Cellulose was signalized when ground was broken in Vancouver, B. C., for a plant to manufacture Rayflo from hemlock bark. Rayflo, already being manufactured in the U. S. by Rayonier at Grays Harbor, Wash., is a silvichemical dispersant for oil drilling muds. The $1,000,000 plant is being built adjacent to the sawmill of Universal Lumber & Box Co., a subsidiary, and Alaska Pine's new research laboratory.

In the actual ground-breaking ceremony a seismograph charge similar to that used in well drilling was used.

Addressing an audience of several hundred businessmen, Pres. Clyde B. Morgan of Rayonier said two important areas remained in North America

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NO **"GAP PROBLEM"**—overlapping strainers absolutely eliminate "gap".

NO **CLEANING PROBLEM**—screen plates are flush-mounted with surface of frame—perforated holes do not overlay structural members. Necessary cleaning is easier than ever.

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▶ **CORROSION PROBLEMS MINIMIZED**—because "Lap Joint" Strainers are available in *ESCO* Alloy 40 or 45 (ASTM A296-49T, Grade CF8 or CF8M) and other super alloys such as Inconel with proved resistance to all types of sulfite or alkaline cooking liquors.

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for major woodpulp and related expansions: (1) The Southeast of U.S.A., and (2) British Columbia and nearby areas.

He prophesied that the day would come when chemical production from forest materials hitherto unused would exceed in value industry's output of lumber and pulp.

ABITIBI PLANS MORE EXPANSION—Abitibi Power & Paper Co., which recently announced net earnings of $10,625,901 and net sales of $113,997,836 for 1954, is planning large scale speed-up and expansion at its subsidiary Manitoba Paper Co. at Pine Falls, Man.

Celgar is a subsidiary of Canadian Chemical & Cellulose Co., Canadian affiliate of Celanese Corp. of America. President Maxwell W. Mackenzie, president of CCC, reports sales of $28,488,000 in 1954, a gain of $9,673,000 over the previous year, although the company's net loss was $5,202,957. Another subsidiary, Columbia Cellulose Co., Prince Rupert, increased its production in 1954.

CANADIANS DON'T ENJOY SEEING THEIR DOLLAR CLIMB—When the Canadaian dollar takes a dip in relation to U. S. exchange, Canada's pulp and paper manufacturers are just that much happier because it means more dollars for their exports.

The rise of the Canadian dollar during the past year or so has played hob with earnings of market woodpulp

In Canadian News

Pulp customers in Canada and U.S. will be seeing LARRY T. WELCH (left), who has been transferred from research laboratories of Howard Smith Paper Mills, Ltd. at Cornwall, Ont., to the Pulp Sales department at Montreal. EDWARD J. THOM, Manager of Pulp Sales, says Mr. Welch is a ch.e. graduate of U. of Toronto and will call on mills in Canada and U.S.

New Sales Representative of the Organic Chemicals Div., North American Cyanamid, Ltd., is HAROLD E. MONGOVAN, JR. (right). He will headquarter in Toronto and represent the divisions dyestuff dept. in Ontario and Western Canada. Born in Bangor, Me., he is a graduate of the U. of Maine. He will live with his wife and three children at 253 Albion Ave., Oakville, Ont.

and newsprint companies in Canada. Increase of a percentage point in the Canadian dollar in terms of U. S. currency meant annual loss of $7,000,000 for the industry.

How this affects one company was illustrated by Harold S. Foley, president of Powell River, 81% of whose newsprint is marketed in the U. S. In 1950, when the Canadian dollar was relatively low, the difference in rate added $2,679,000 to his company's income. By 1952, as the Canadian dollar climbed, the company took an estimated loss of $837,000 on exchange. In 1953, the loss was $573,000 and in 1954, more than $1,000,000.

D. W. Ambridge, president of Abitibi Power & Paper Co., recalls that in 1953 the average discount on U. S. funds was 1.66%; in 1954, 2.68%, and at the close of that year 3.41%.

The Canadian government favors a policy of equality of the dollar with the U. S. to stabilize the export-import situation, and to that end of the Bank of Canada made purchases of U. S. funds to halt the rise of the nation's dollar.

HOW WILL BRITAIN GET MORE NEWSPRINT?—Just where they'll get the paper is another matter, but after next March, newspapers in the United Kingdom will be free of rationing and may print as many copies as they wish. The use of newsprint in the U. K. has been under rigid control for 15 years, although there has been some relaxation of restrictions during the past five years. Most of the dailies have been running from 8 to 16 pages daily. Interim order in August enabled them to add two or four pages daily.

Low-price papers will get proportionately less newsprint than high-priced papers. This has touched off a controversy on Fleet Street, the big-circulation Daily Mirror accusing The Times of "hogging" paper and charging that "irresponsibility" has sabotaged a plan for voluntary rationing after removal of controls. Some newspapers, claimed the Mirror, may be forced out of business. The Newsprint Supply Co., which has been importing newsprint, contends voluntary rationing will be necessary because of limited supply.

Eldest Dan Quirk Dies

Dan L. Quirk Jr., in his 80's, chairman of Peninsular Paper Co., Ypsilanti, Mich., died Oct. 14. Dan T., his son, is president, and Dan G., grandson, is vice president of Peninsular.

National Forest Timber for Sale

LOCATION AND AMOUNT—This sale includes 5,250,000,000 board feet, more or less, of merchantable timber of western hemlock, Sitka spruce, western redcedar and Alaska-cedar and other species designated for cutting within Pulptimber Allotments B and H and also under certain conditions set out in the contract within a portion of Pulptimber Allotment C or Pulptimber Allotment A-1, in the general vicinity of Baranoff, Chichagof and Kuiu Islands within the Tongass National Forest, Alaska. The boundaries of these Pulptimber Allotments and of the principal areas reserved from cutting or given other special status by the terms of the contract are shown on maps on file at the office of the Chief, Forest Service, Washington, D. C. and the Regional Forester, Juneau, Alaska.

SALE CONDITIONS—A sample timber sale contract which fully states the conditions of sale is available on request from the Regional Forester, Juneau, Alaska, or the Chief, Forest Service, South Agriculture Building, Washington 25, D. C.

STUMPAGE PRICES—The appraised value of the timber according to long-term normal market and operating conditions is $2.05 per thousand board feet for Sitka spruce, $1.30 per thousand board feet for western hemlock, western redcedar, Alaska-cedar and other species. No bid will be considered which is less than these rates as a base rate applicable through the entire period of the sale contract, plus at least $0.55 per thousand board feet for Sitka spruce, $0.15 per thousand board feet for western hemlock and $0.05 for western redcedar, Alaska-cedar and other species, the total to apply to all timber cut prior to July 1, 1971. Rates for all species and products are subject to redetermination by the Forest Service on July 1, 1971, and at five-year intervals thereafter. In no event shall redetermined rates be less than the base rates set forth in this paragraph, nor shall rates lower than those bid become effective until 250,000,000 board feet of timber has been paid for, cut and scaled.

In addition to the prices bid for stumpage, a deposit of $.30 per M board feet for all material scaled as logs will be required for use by the Forest Service in improvement of the future stand of timber on the areas cut over.

QUALIFICATIONS FOR BIDDING—Parties wishing to enter bids must file with the Regional Forester, P. O. Box 1631, Juneau, Alaska, on or before January 11, 1956, statements evidencing: (1): their financial and other resources to make surveys, designs and plans needed prior to operation and construction; (2): general manner in which the entire project will be financed if the bidder is declared the successful one; (3): names, business standing and experience of the prospective bidder and his associates in the manufacture and distribution of forest products, and in the construction or operation of industrial projects; and (4): the principal features of their plan for operating, processing and marketing the timber which the prospective bidder will follow if he is the successful bidder and qualifies for final award. The Regional Forester will inform each applicant on or before January 18, 1956, whether he has qualified as a bidder. No applicant will be approved as a bidder unless his statement shows, in the opinion of the Forest Service, reasonable evidence that he will be able to qualify for the final award of the timber sale contract.

The right is reserved upon published notice prior to January 10, 1956, to extend the date for receipt of qualifying statements and of bids.

Prior to July 1, 1958, the successful bidder will be required to show that he has immediately available, or will have available as needed, sufficient funds to provide the improvements, equipment, and working capital necessary to enable him to meet the requirements of the contract. As a minimum such showing before final award must include evidence that a fund of at least $15,000,000 will be available to draw on for plant construction. An extension of time for qualification for final award beyond January 1, 1959, may be granted by the Chief, Forest Service, if the successful bidder has demonstrated good faith through substantial expenditures on essential surveys, designs and plans and has evidenced his ability to qualify within such extended period.

DEPOSIT AND BOND—In addition to qualifying for bidding, any person entering a bid at the auction must post with the Forest Officer in charge as a guarantee, a bank draft or certified check in the amount of $25,000, payable to the Forest Service, USDA, which will, in the case of the successful bidder, be applied to the purchase price of the timber or retained as liquidated damages. Remittances of unsuccessful bidders will be returned immediately after completion of the auction. Within fourteen days of designation at the auction the successful bidder must also deposit with the Forest Service negotiable securities of the United States to the value of $75,000 (face value) or make an additional deposit of $75,000 payable to the Forest Service, USDA, as an additional guarantee of qualification for final award and execution of the sale contract within the specified time limits. In event the successful bidder fails to furnish a financial statement, to execute the sale contract and to furnish the bond required by its terms by January 1, 1959, or not to exceed such additional extension of time as may be granted by the Chief, Forest Service, then, in view of the difficulty of estimating the actual damages which will be sustained thereby, said deposits and said securities shall be retained by the United States as liquidated damages. Upon furnishing these financial statements, executing the contract, and furnishing the bond, the additional deposit of $75,000 will be returned to the purchaser.

AUCTION BIDDING—Oral auction bids will be received by the Regional Forester, Federal and Territorial Building, Juneau, Alaska, starting at 10:00 a.m. on January 25, 1956. Each qualified bidder must, prior to the beginning of the auction, submit a sealed bid as a qualification to participate in the oral bidding. Preliminary award to the highest qualified bidder will be made at the close of bidding. Such high bidder must thereupon immediately sign a "Bid for Advertised Timber" at the highest rate bid by him at the auction. The right to reject any and all bids is reserved.

PLANT CONSTRUCTION REQUIREMENTS—The contract contains requirements for installation of a pulpmill, and also a schedule of dates on which various showings required of the purchaser are due. Prospective bidders should familiarize themselves with these requirements. Full information concerning the character of the timber, conditions of sale, and requirements to qualify as a bidder, may be obtained from the Chief, Forest Service, South Agriculture Building, Washington 25, D. C., or the Regional Forester, Juneau, Alaska.

Klaussen Reports Progress At Hooker Montague Plant

● Hooker Electrochemical Co. is continuing to expand operations at its Montague, Mich., plant, announces President Bjarne Klaussen.

Hooker's management has authorized almost $3,000,000 to be spent at Montague in the next year or so for enlargement and product diversification.

Extra facilities to be built over the next year include a hydrogen chloride compression unit and a hydrogen chloride gas pipeline to an adjacent plant being built by DuPont, for production of DuPont's neoprene.

Other facilities to be constructed include an additional chlorine liquefaction system, involving extra refrigeration and heat exchanger facilities, to be completed next winter.

A second circuit of Hooker electrolytic cells, producing chlorine, caustic soda and hydrogen, was put into operation June 28. The plant already is operating fairly close to capacity.

New Lime Deposit To Be Used in West

West End Chemical Co. announces discovery and acquisition of a new, exceptionally pure lime rock deposit in the Argus Range, Inyo County, Calif., just north of the present plant in Westend, Calif.

Company officials were anticipating rapid transferal of present quarry operations to the new site. Under consideration is installation of a rotary lime kiln using natural gas as fuel, with top capacity of 170 tons of lime per day. Carbon dioxide resulting from the kiln operation will be used in the carbonation process, eliminating the vertical lime kiln operation. Officials said lime from the rotary kiln will be of the highest quality and will be marketed as pebble and hydrated lime.

A Couple of Ideas From Coosa River

Here's an idea for stimulating "pride in product" of mill employes—recognized as one of the most successful keys to more and better production.

The crews that work on the two big 226-in. Fourdriniers at Coosa River Newsprint Co. are well aware of where the paper they make is going. For the banners of over 30 newspapers using the product are framed on the machine hoods, where they are seen every day by the men on the job.

Another good idea at Coosa—a raised platform with step on each side, to go up and down, and located on floor between the two newsprint machines. Thus, visitors do not have to climb up on the machine walkways for a view of the wire and those high speed special Kimberly-Clark headboxes, which are identical with those they use for their cellulose products.

New Penobscot By-Product

As a result of research in waste sulfite and soda liquors for many years, the Penobscot Chemical Fibre Co. of Great Works, Me., and Boston, Mass., recently announced an important new material for industry under the trade name "Penob."

It is a unique resin developed from sulfite waste liquor with a large surface area, either neutral or acid. The resin is hard, granular, porous and infusible and offers interesting possibilities for use in the oil, plastic and rubber industries.

Donohue Issues Bonds

Proceeds of an additional issue of $1,300,000 first mortgage bonds of Donohue Bros., Ltd., Clermont, Que., will be used chiefly for acquisition of additional pulpwood timber. The prospectus issued in connection with the bond issue, which was promptly oversubscribed, states that additional expansion may be undertaken shortly by Donohue Bros.

Watch for me next month—I'll have a valuable tip for you!

—The Papermaker

BOLTON EMERSON

John W. BOLTON & Sons, Inc.
EMERSON MANUFACTURING DIVISION
Lawrence, Massachusetts

In Industry News

ANTON J. SINGER (left) is new Assistant Secretary of International Paper Co. as announced by R. C. DOANE, President. Mr. Singer, a native of New Jersey, joined the company in 1934. A graduate of Fordham University and St. John's Law School, he has been an attorney in the company's Legal Department since 1947.

WILLIAM E. VAN HORNE (right), is new Assistant Sales Mgr., Industrial Nucleonics Corp., Columbus, O. He joined the firm in 1952 as Sales Engineer in charge of Chicago Territory. He had been with Minneapolis-Honeywell as Sales Engineer. He graduated from Purdue, received a master's degree at Wharton Business School. HENRY C. CHOPE is Vice Pres. and Sales Mgr.

Information Program Is Planned for South

Cameron & Barkley Co., with offices in several Southeast cities and headquarters at 160 Meeting St., Charleston, S. C., plans a technical information program to acquaint purchasing agents and plant operating men with the latest in product and method development. More than 50 large manufacturers will cooperate with C&B in conducting seminars, publishing a digest type of magazine.

Rufus Barkley, president of the 90-year firm, said the program will be geared to the rapidly expanding industrial activity in the South.

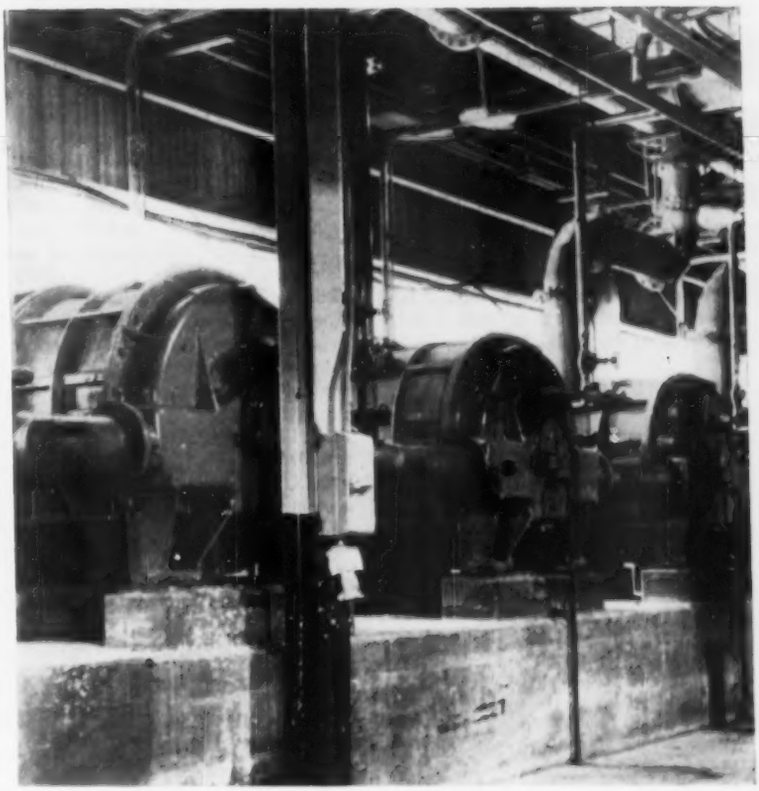
Establish West Coast Plant

Clark Equipment Co., a leading manufacturer of materials handling and earthmoving equipment, will establish a West Coast plant before the end of the year, Georga Spatta, president, disclosed recently in an address before The Security Analysts of San Francisco.

Mr. Spatta said Clark's West Coast facility will be a parts depot at the outset and later will be an assembly plant for fork lift trucks. It will be in the San Francisco-Bay area. Complete stocks of service parts for Clark and Clark-Ross industrial trucks and straddle carriers and for "Michigan" tractor shovels and cranes will be warehoused.

Mr. Spatta said the plant will enable overnight deliveries anywhere west of the Rockies.

What, actually, do Vacuum Pumps on paper machines handle?



Paper mill engineers know that it is actually a mixture of air and water vapor, but the custom of rating vacuum pumps in terms of air capacity alone causes this important fact to be frequently overlooked.

The presence of this water vapor causes a considerable reduction of the effective air handling capacity of any vacuum pump except the Nash. In the Nash Vacuum Pump the bulk of this water vapor is effectively condensed, due to the Nash operating principle. The air handling capacity of the Nash is therefore not reduced.

That is one of the reasons why Nash Vacuum Pumps are standard in over a thousand leading Paper Mills.

NASH ENGINEERING COMPANY

443 WILSON ROAD, SO. NORWALK, CONN.

EQUIPMENT AND SUPPLY NEWS

SANDY HILL IRON & BRASS WORKS has a new brochure on dryers and dryer sections including details on dryer section auxiliaries such as bearings, gears and framing. **ALLEN A. LOWE**, sales promotion manager, in a letter to PULP & PAPER, calls attention to improved precision coring which results in a uniform wall thickness across the entire dryer face. He also remarks that in some instances when wet end sections are improved, resultant bottlenecks in the dryer sections can be usually rectified and the entire production rate stepped up by installing an additional nest of Sandy Hill dryers. Send request for more information to Sandy Hill at 27 Allen St., Hudson Falls, N.Y.

READ STANDARD CORP., 370 Lexington Ave., N.Y. 17, offers bulletin B-154 on their Standardaire axial-flow, positive-displacement blower, which takes in and discharges air from pockets formed between intermeshing male and female rotors during the cycle of rotation.

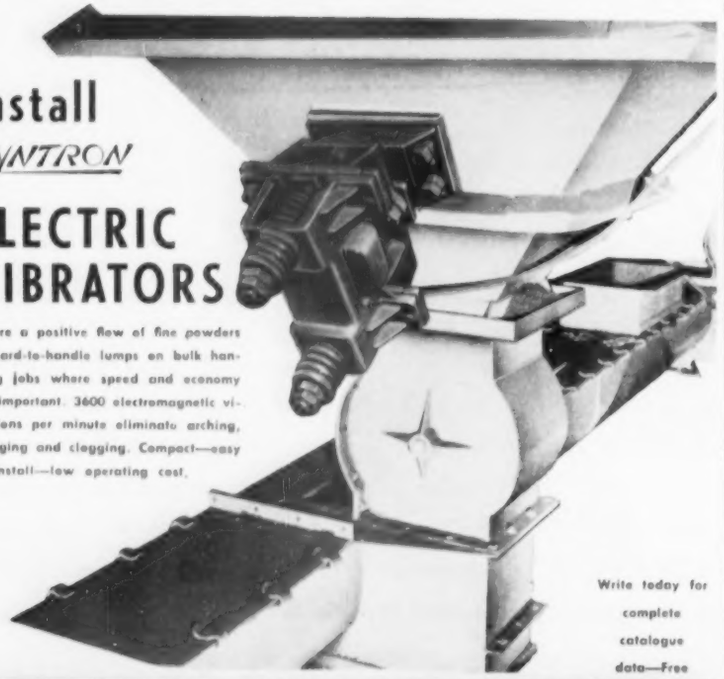
DYNAMATIC DIVISION, Eaton Mfg. Co., Kenosha, Wis., has a new Dynamatic Electronic Controls Bulletin, EC-1, containing non-technical, simplified information on installation, performance and maintenance of the basic Dynamatic electronic control. Tell them PULP & PAPER sent you.

CLARK E. PATTON, president of the **PATTON MFG. CO., INC.**, advises P&P that **CHARLES W. PATTON**, vice president, will become director of sales for all departments of the company. **GEORGE S. HERBERT**, general manager of the paper mill division, assumes additional duties as vice president in charge of manufacturing. He is also a new member of the board of directors. Patton has recently entered into the field of paper mill machinery.

JOHN M. MACLAURIN, president of the **MCLAURIN-JONES CO.**, Brookfield, Mass., announces a three-company affiliation to bring together a wide range of diversification of paper-packaging products. McLaurin-Jones Co. is now affiliated with Ludlow Mfg. & Sales Co. and the Angier Corp. of Framingham, Mass., manufacturers of protective papers and spiral wrapping machinery, is also affiliated with Ludlow.

STAUFFER CHEMICAL CO. and **CONSOLIDATED CHEMICAL INDUSTRIES, INC.** have jointly announced an agreement in principle to merge.

for Free-flowing Bins, Hoppers and Chutes

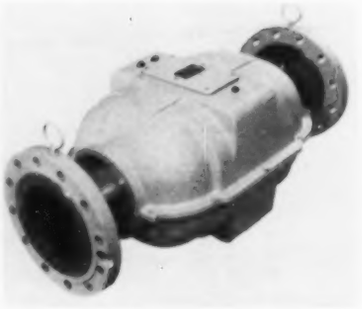


install
SYNTRON
ELECTRIC
VIBRATORS

Assure a positive flow of fine powders or hard-to-handle lumps on bulk handling jobs where speed and economy are important. 3600 electromagnetic vibrations per minute eliminate arching, plugging and clogging. Compact—easy to install—low operating cost.

Write today for complete catalogue data—Free

SYNTRON COMPANY
659 Lexington Avenue Homer City, Penna.



Meters Pulp Stock Flow

Some of the industry's most difficult flow measurement problems are solved by this Magnetic Flow Meter by Foxboro Co., Foxboro, Mass. Now in use in prominent mills, the meter presents no more restriction to flow than a corresponding length of standard pipe. Purges of all types are eliminated. Basic unit is a transmitter which directs a magnetic field across an unrestricted section of Kel-F plastic or Neoprene lined stainless steel pipe flanged into flow line. Flowing liquid acts as the conductor, generating a voltage directly proportional to rate of flow through the pipe. Electrically connected to transmitter is a Foxboro Dynalog Instrument, recording units of flow. Write for Bulletin 20-14.

PANDIA INC. DIVISION of The Black-Clawson Co. has developed a digester blow valve featuring micrometer control of the orifice opening. It is designed primarily for operation with the Pandia Continuous Digester, is all-stainless steel construction, applicable to any process where it is necessary to discharge stock from a high pressure digestion zone to atmosphere.

SIGNODE STEEL STRAPPING CO. offers the first air-powered strapping machine that automatically tensions strapping and then seals and cuts it off in two easy motions. This semi-automatic Model AP tool is power driven, taking all effort out of tensioning steel strapping and speeds entire operation by eliminating major cause of operator fatigue. Ask for further details from Signode at 2600 North Western Ave., Dept. 9P, Chicago 47, Ill.

NOPCO CHEMICAL CO. will have a new multi-story pilot plant in Harrison, N.J.,which will develop new products for the paper industry. Occupancy is expected in early 1956.

ELECTRIC STEEL FOUNDRY CO., Portland, Ore., has issued a brochure on the firm's relatively new "Shellcast" casting, a system resulting in cost savings up to 60%, according to this 3-color 12-page publication. The Esco Shellcast process is said to have good reproduction detail, conserves metal, reduces item weight, calls for reduced machining costs and makes for close dimensional tolerance.

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gives you

a "turn-key" job...

a complete recausticizing system

In planning your plant improvement program, the most economical method is to select one competent, reliable supplier for your equipment.

With Graver as your source for recausticizing equipment, you will gain the benefits of Graver design...Graver engineering...Graver fabrication...Graver field-erection.

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Classifiers
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Lime Mud Washers
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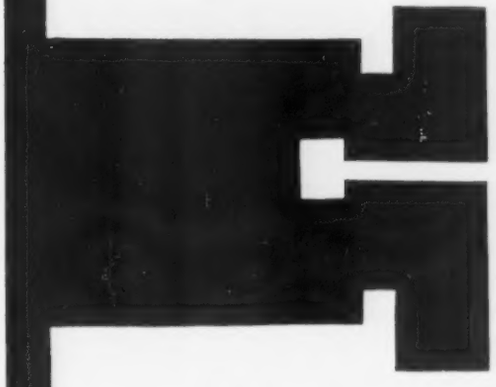
Filters



GRAVER TANK & MFG. CO., INC.

East Chicago, Indiana

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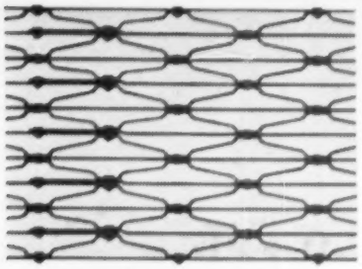
CLEVELAND • DETROIT • TULSA • SAND SPRINGS, OKLA. • HOUSTON • ODESSA, TEXAS • CASPER, WYO. • LOS ANGELES • FONTANA, CAL. • SAN FRANCISCO

THE
MANY-PURPOSE
FLOORING
FOR PAPER MILLS
★
IRVING GRATING



In every step from log to paper you're on sure footing with IRVING open-grid steel and aluminum flooring.

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Walkways
Heavy-duty, cement-filled armouring
Receiving and loading platforms
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Custom-Built to Your Specifications
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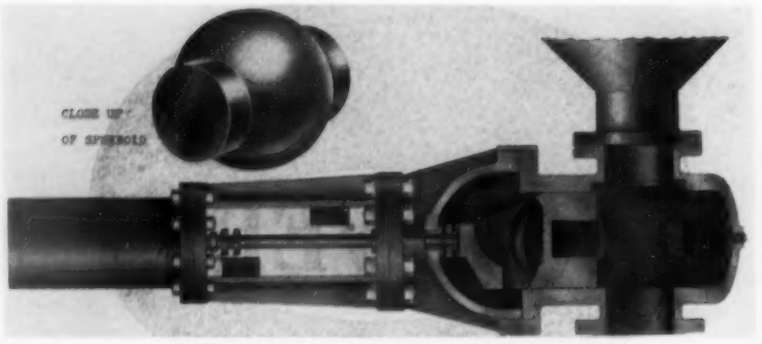


A New Blow Valve

Cam-like device of this new digester blow valve by WILKINS-ERDMAN INDUSTRIES contacts only hubs of a hubbed spheroid and forces spherical surface against the seat at high pressure. Spherical seating damage is eliminated since it never contacts parts other than beveled seat. HANK D. JONES CO. sells them in 12 Southern states and ESCO in the Midwest and Pacific Coast.

The **BLACK-CLAWSON CO.**, Dilts Div., Fulton, N.Y., has installed a new 80-in. machine for overall coloring, trademark and pattern printing at Mengel Co., Fulton, N.Y. The machine is used on bleached and unbleached kraft liner for corrugated boxes and is designed for 400 fpm maximum speed.

JOHNS-MANVILLE will send their new booklet on "Transite Pressure Pipe and the Ring-Tite Coupling" if you will write to them at 22 E. 40 St., N.Y.C. 16. It shows manufacturing methods in producing this asbestos-cement pipe for water systems and describes savings in installation time and outlines characteristic advantages once the pipe is in the ground.

FISCHER & PORTER CO. has a new series of variable area flowmeters with simplified design features, sturdier construction and 100% greater visibility of the metering tube. This 1700 Series Flowrator Meter retains inherent good features of the proven 700 series. Write Fischer & Porter Co., Hatboro 35, Pa.

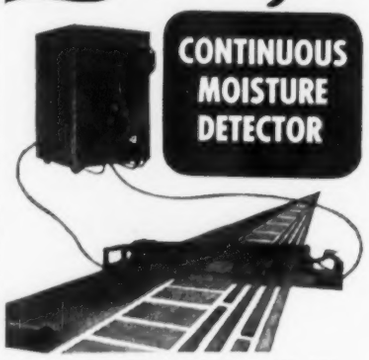
AMERICAN TRACTOR CORP., is introducing two revolutionary developments in the low-priced crawler tractor field. These are a new all-hydraulic instant-shift transmission and torque converter drive. Ask for details from company at Churubusco (Ft. Wayne), Ind.

AMERICAN CYANAMID CO. has a new bulletin, No. 34, dealing with Polyacrylamid (PAM), outlining potential uses for this chemical in the paper and other industries. Write to New Product Development Dept., Section C, 30 Rockerfeller Plaza, New York 20.

FALLS INDUSTRIES offers a new catalog covering operating and dimensional specifications of Impervite (including the Impervite Rupture Disk) as well as diaphragm and custom-designed valves. Ask for it from John Reys, Chief Engineer, Falls Industries, 31765 Aurora Rd., Solon, Ohio.

LADISH CO., TRI-CLOVER DIV. has just introduced a new industrial fitting designed for corrosion applications. These stainless steel Tri-Clamp fittings consist of a flange type ferrule—a special precision molded gasket, which fits into the grooved ferrule lip—and the Tri-Clamp itself, which is composed of a specially fabricated spring clamp which grips the ferrule edges, and a simple, bolt-type coupler assembly firmly secured to the clamp ring. Ask for information from Ladish Co.-Tri-Clover Div., Kenosha, Wis.

LAUCKS Sentry
PAT. APPLIED FOR



FOR POSITIVE MOISTURE CONTROL

The first high speed, continuous detector to incorporate ALL features necessary for 100% control, SENTRY® provides full-width scanning, accuracy throughout a wide range of basis weights and moisture contents, and unprecedented performance on both coated and uncoated products. A production line machine, SENTRY is used in more than 100 applications ranging from rough lumber to the finest paper. Write TODAY for complete information.

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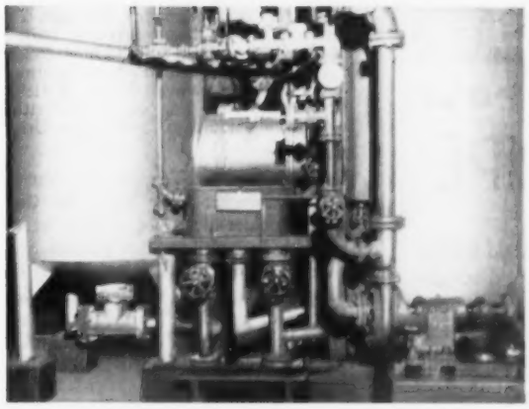
Low SO_2 Loss

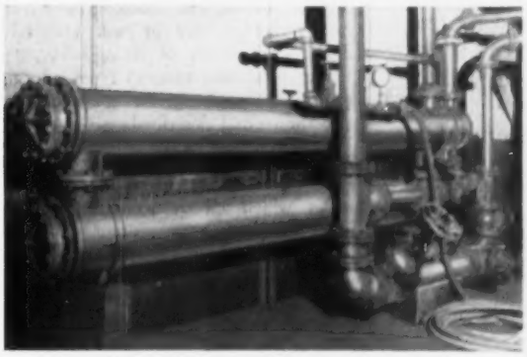
Low SO_3 Formation

Low Water Consumption

with the Chemipulp-K.C. Spray-Type SO_2 Gas Cooling System



Chemipulp-KC Spray Type SO_2 Gas Cooler at Franconia Paper Corp. Primary tower at left, secondary tower at right, weir box and circulating pump in center



Heat Exchanger used with the SO_2 gas cooler

These illustrations show the spray-type SO_2 gas cooler which helps the Franconia Paper Corp., Lincoln, N. H., maintain the quality of its Profile Offset, Franconia Bond, Pressmans Bond and other fine papers.

The system consists of a primary and secondary spray tower, heat exchanger, circulating pump and weir box for water level control. Hot gas from the sulphur burner enters the top of the primary tower where it is sprayed with cooling water. The temperature of the gas is instantly dropped through the critical range of SO_3 formation so that very little SO_3 is formed. Most of any SO_3 which may be produced is absorbed by the cooling water and overflowed to the sewer. Practically no SO_2 is wasted.

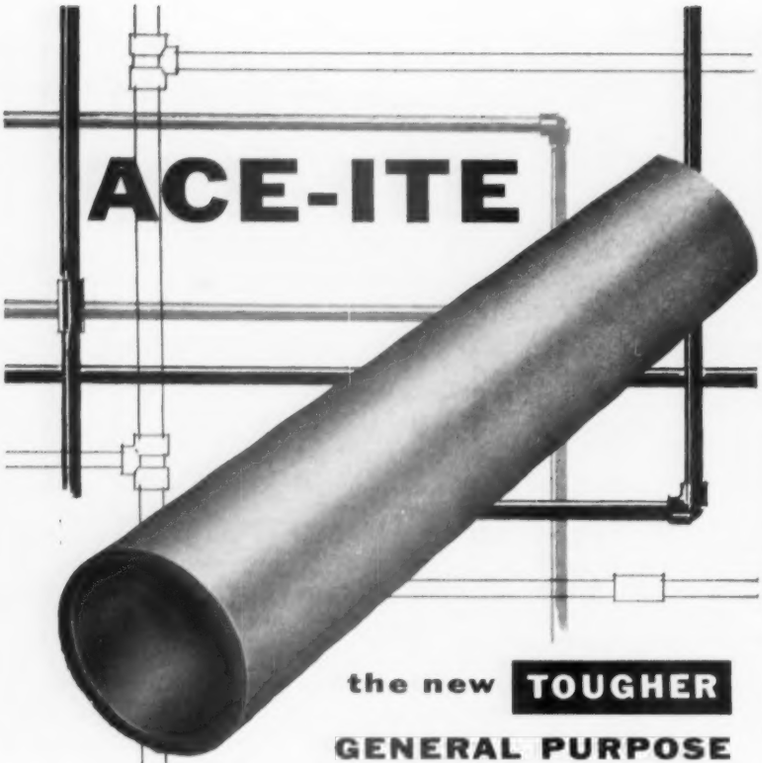
The cooling is completed by a spray in the secondary tower. This cooling water, which carries some SO_2, is passed through the heat exchanger and recirculated through the tower. Part of this water is also used for primary tower spray, and make-up water is automatically added in the weir box. In case of power failure or stoppage of the circulating pump, fresh water is automatically supplied to the primary tower to prevent overheating. Final temperature of SO_2 gas leaving secondary tower is within 10° F. of the temperature of the cooling water.

The system occupies little space, is free from leaks, and is easily maintained. The men have a clean, dry place to work. Very little make-up water is required, and the hot water from the heat exchanger can be used for pulp washing and similar purposes.

Chemipulp Process Inc. Watertown, N. Y.

Associated with Chemipulp Process Ltd., 430 Crescent Bldg., Montreal

Pacific Coast Representative, A. H. Lundberg, 308 Orpheum Bldg., Seattle 1, Wash.



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PLASTIC PIPE

ACE-ITE is a new moderately priced rigid plastic pipe with exceptional impact strength and toughness . . . handles most corrosive fluids in your plant at moderate temperatures and pressures.

For piping most inorganic acids, salts, alkalis and many organic chemicals, it's the equal of plastics that cost far more. ACE-ITE maintains good strength, rigidity and chemical resistance from minus 40 deg. F. to 170 deg. F. Light in weight, it is odorless, tasteless, non-contaminating. Saves cost of painting, immune to electrolytic corrosion and bacteria. Available in pipe sizes from ½" to 6", standard and extra-heavy, with wide variety of fittings.

ACE-ITE is only one of eight types of rubber and plastic pipe now offered by American Hard Rubber Company. Write today for free technical Bulletin 80.

ACE rubber and plastic products

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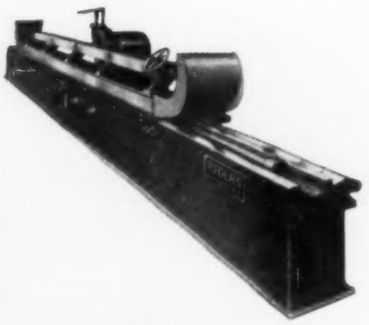

New Series 220 Rogers Base Knife and Face Grinder

A new massive Samuel C. Rogers & Co., Inc., Series 220 Grinder, manufactured to precision standards. It is of traveling table design for face and bevel grinding of chipper, paper, and other straight knives. It is built with hydraulic table drive with table speeds variable from 10 to 100 in. per minute. Faster speed available if required. Hydraulic system includes one cylinder, hydraulic pump, control valves, gauges and all necessary piping, and driven with a 5 HP motor and controls. The carriage travels on wide self-aligning machine-ground ways of combination type with one V and one flat way. The grinding wheel head features built-in motor with a special spindle mounted on heavy duty preloaded ball bearings. Wheel head motor available in 15 HP or 25 HP capacity. For more information write the company, 2070 Sheridan Drive, Buffalo 23, N. Y.

JOHNS-MANVILLE's new "Transite Pressure Pipe and the Ring-Tite Coupling" booklet describes savings in installation time and outlines characteristic advantages once the pipe is in the ground. It also gives recommended procedures for installing Transite piping and assembling of the Ring-Tite Coupling. Copies are available from J-M at 22 East 40th St., N.Y. 16.

READ STANDARD CORP., Bakery-Chemical Div., York, Pa., offers its "Readco" Mixer catalog, No. 55782, on their spiral ribbon mixers for continuous or batch mixing and blending of pulverized, granular, dry or wet materials; double-arm mixers of tilting-bowl, stationary-bowl and vacuum types offering controlled speeds. Screw conveyors are also shown and described.

MARCONI INSTRUMENTS, LTD. is said to have an electronic moisture meter which speeds accurate measurement of percentage content. No preliminary weighing is required while errors resulting from bulk or thickness are reduced to negligible proportions. Accurate results are said to be obtainable in less than 1 minute and unskilled operators can be quickly instructed in the use of the equipment.

PAASCHE AIRBRUSH CO. and **CLINE ELECTRIC MFG. CO.,** have merged their interests, according to a joint statement by Warren P. Scott, president of

Cline, and J. A. Paasche, president of Paasche. The new company will be known as Paasche Airbrush Co., Div. of Cline Electric Mfg. Co.

CHIEF ENGINEER

A large, growing building materials company located in Chicago is seeking a Chief Engineer. Will be responsible for all maintenance, equipment, buildings, general engineering work as well as supervision of outside contractors. Should have administrative experience in directing sizable engineering department. An operating background would be an advantage as opportunities for advancement are great. Engineering training desirable. Appropriate compensation. Your reply respected. Write to Box 254, PULP & PAPER, 370 Lexington Ave., New York 17, N.Y.

Statement required by the Act of August 24, 1912, as amended by the Acts of March 3, 1933, and July 2, 1946 (Title 39, United States Code, Section 233) showing the ownership, management, and circulation of Pulp & Paper, published monthly except in July when publication is semi-monthly at Bristol, Connecticut for October 1, 1955.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Wm. B. Freeman, 121 Second Street, San Francisco 5, California; Editor, Albert W. Wilson, 1791 Howard Street, Chicago 26, Illinois; Managing Editor, None; Business Manager, Ralph R. David, 370 Lexington Avenue, New York 17, New York.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given). Miller Freeman Publications, Incorporated, 121 Second Street, San Francisco 5, California; Wm. B. Freeman, Miller Freeman, Jr., 121 Second Street, San Francisco 5, California; L. K. Smith, W. E. Crosby, 71 Columbia Street, Seattle 4, Washington.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

Wm. B. Freeman,
Publisher

Sworn to and subscribed before me this 27th day of September, 1955.

[Seal] Barbara M. Hampson
San Francisco, California

My Commission expires February 18, 1958.

Meeting Today's Needs with Research . . .

Chief Sandusky

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CENTRIFUGAL CASTINGS
FOR ROLL SHELLS,
COVERS, and LINERS

Here you'll find a skilled staff in completely equipped laboratories testing new materials, developing new processes, helping to make better castings for your specific requirements.

These improvements are directly translated into uniform, strong, close-grained ferrous and non-ferrous castings with extreme resistance to corrosion, heat, and abrasion. As another service, the Chief offers machining facilities for turning, boring, and drilling.

Bring your casting problems to the Chief's thoroughly trained specialists. These men are always available to apply their broad experience to your particular needs.

Chief **SANDUSKY**
CENTRIFUGAL CASTINGS
FERROUS AND NON-FERROUS
SANDUSKY FOUNDRY AND MACHINE CO., Sandusky, Ohio

WANTED—GENERAL SUPERINTENDENT

Man thoroughly familiar with the operation of modern high speed fourdrinier machines in the manufacture of paperboard. Technical background desirable, but only in combination with actual papermaking experience. Mill located in midwest as part of integrated paperboard, container and carton manufacture. Address resume including age, education, and experience to Box 252, PULP & PAPER, 370 Lexington Ave., New York 17, N. Y.

WANTED

Graduate Engineer for the position of Assistant Plant Engineer in expanding West Coast Pulp and Paper Mill. Prefer married man between ages of 30 and 40 years, with at least eight years experience in engineering in the Kraft or Newsprint industry. This position offers great opportunities for the right man. Include recent photograph, resumé of experience since graduation and expected salary with application. Write Box No. 248, PULP & PAPER, 370 Lexington Ave., New York 17, N.Y.

TOM HART, chief cost accountant of St. Helens Pulp & Paper Co., has transferred to Camas as office manager of CZ Central Research Department according to Research Director **W. W. MOYER**.

BOARD MILL MEN

One mill manager; two board mill supts. No fee to be paid unless you accept employment through us. All negotiations are confidential. Send us your latest resume.

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$5,000 to $25,000

SALES—PRODUCTION—TECHNICAL

Competent men badly needed at every level by top mills, converters and jobbers throughout the country. I am a paper man myself. If you have experience in any phase of the Paper Industry and feel qualified to take a step forward in your career, I can and will help you achieve your goal.

Contact me in absolute confidence.

GEORGE M. SUNDAY

Paper Personnel Consultant
Suite 614
220 S. State WA 2-4800 Chicago, Ill.

WANTED

Mechanical engineering draftsman for plant layout capable of board work, automatic equipment design. Position will eventually lead to division head of plant engineering division in central engineering department. Give details of training, experience and references in first letter, salary open, location south. Write to Box 250, PULP & PAPER, 370 Lexington Ave., New York 17, N. Y.

Positions for Paper Executives

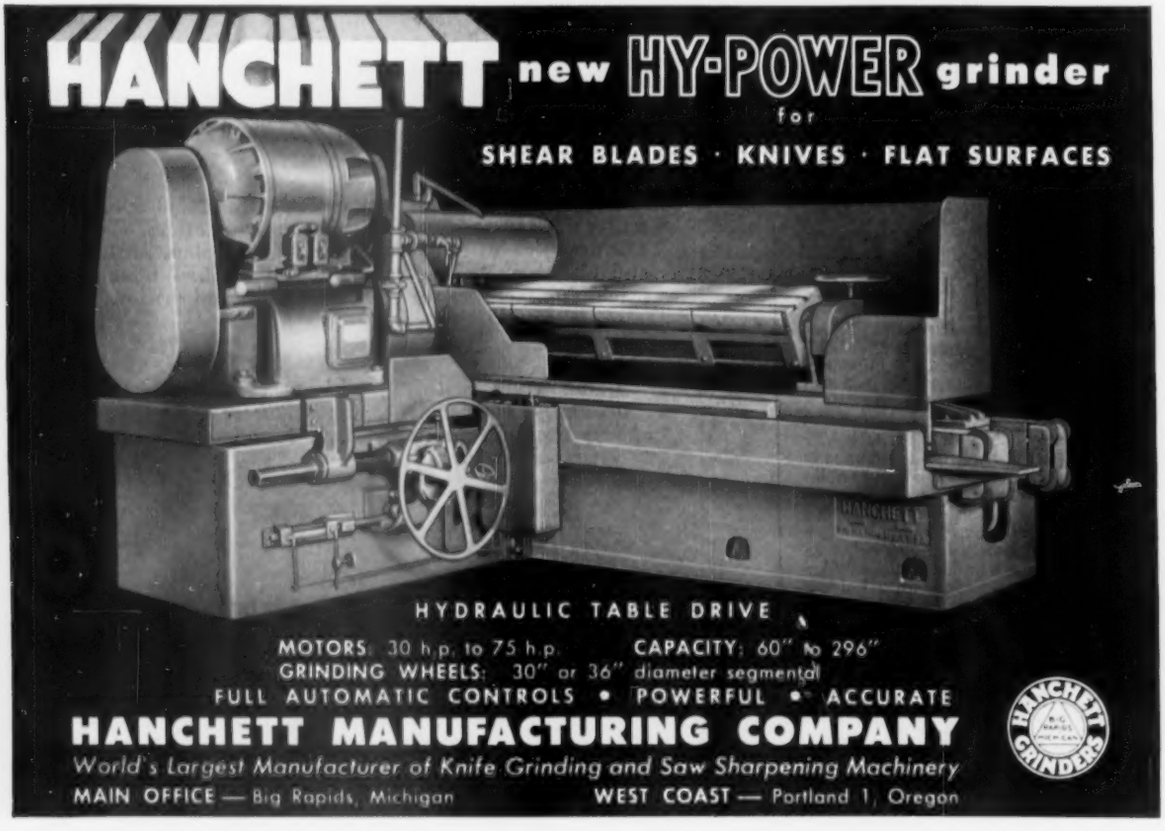
The nation's largest executive placement agency has an exclusive department for the nationwide placement of successful engineers, technical men and salesmen in the paper industry. Immediate openings in all parts of the country for men under 48 earning over $7,000. Write to R. Graebner, Graebner Executive Exchange, 116 S. Michigan, Chicago, Illinois.

TECHNICAL REPRESENTATIVE WANTED

Prominent supplier to paper industry needs man with operating experience in this industry for Technical service work. Knowledge of fourdrinier and cylinder machines desired. Must be willing to travel. Prefer 40 or younger. State salary requirements, experience, availability. All replies confidential. Reply to Box 253, PULP & PAPER, 370 Lexington Ave., New York 17, N.Y.

WANTED

Mechanical design engineers and draftsman for plant layout and automation type equipment. Work consists of office board work and some field work. Experience in paper or pulp mill helpful. Reply giving complete details of experience, training and references. Salary range $6,000 to $7,500. Location south. Write to Box 251, PULP & PAPER, 370 Lexington Ave., New York 17, N. Y.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SHEAR BLADES · KNIVES · FLAT SURFACES
HYDRAULIC TABLE DRIVE
MOTORS: 30 h.p. to 75 h.p. CAPACITY: 60" to 296"
GRINDING WHEELS: 30" or 36" diameter segmental
FULL AUTOMATIC CONTROLS • POWERFUL • ACCURATE
HANCHETT MANUFACTURING COMPANY
World's Largest Manufacturer of Knife Grinding and Saw Sharpening Machinery
MAIN OFFICE — Big Rapids, Michigan
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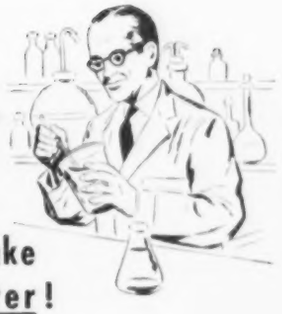
HANCHETT GRINDERS

At ORISKANY—



We're working constantly to make good Felts better!

In our laboratory we have experimented with each new synthetic fibre as it has become available. We've blended these fibres with wool in various combinations to produce felts that have greater strength and longer life without sacrificing quality. And we've developed exclusive new chemical formulas that provide permanent proof against bacterial damage to synthetic and wool fibres.

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...and in the field our experienced sales engineers work closely with paper-makers, advising them of our new improvements and techniques . . . helping them select the proper felt for their particular application. Oriskany produces *only* paper-maker's felts. Our efforts are concentrated on making better felts . . . to help you make your paper products better . . . faster . . . at less cost!

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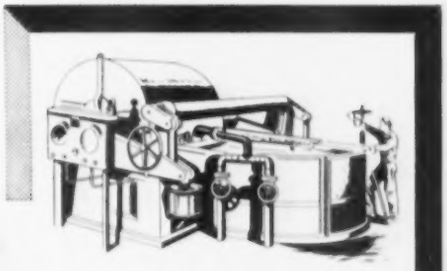

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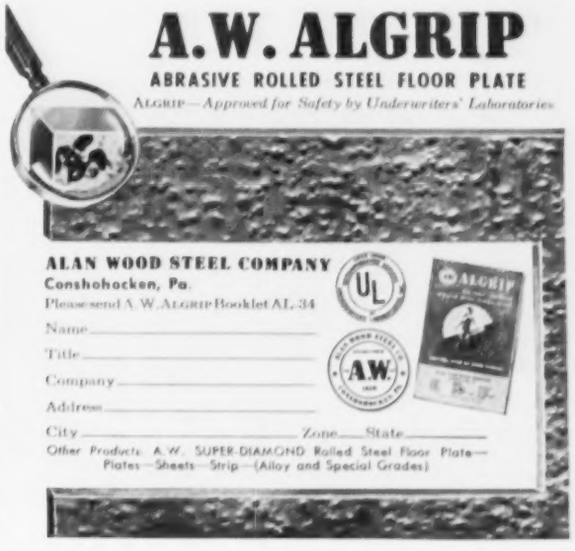

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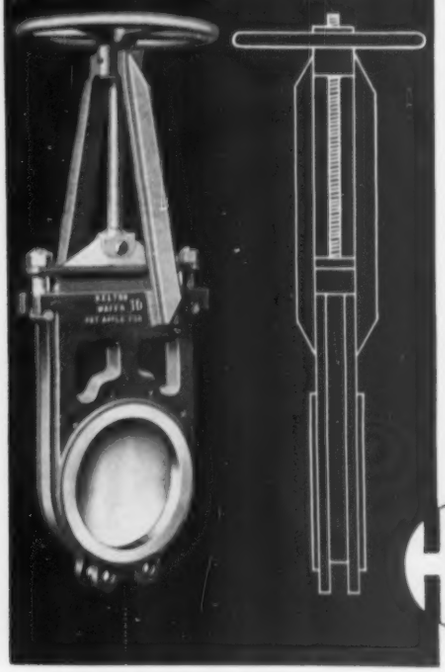
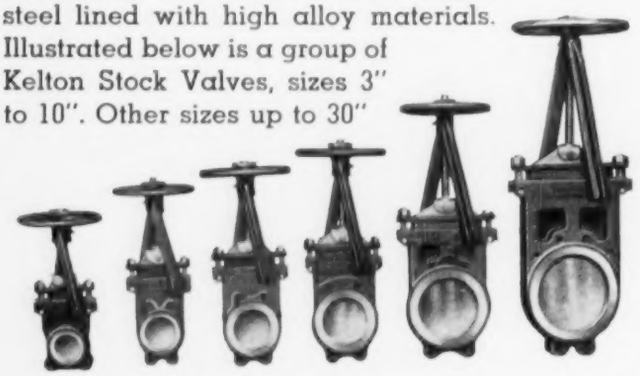


These thin face-to-face valves can be supplied in cast stainless steels, or cast steel lined with high alloy materials. Illustrated below is a group of Kelton Stock Valves, sizes 3" to 10". Other sizes up to 30"



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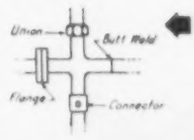

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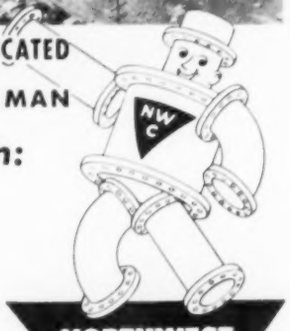

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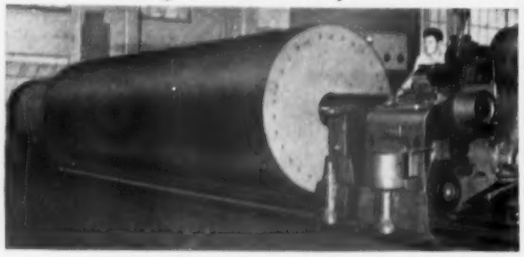

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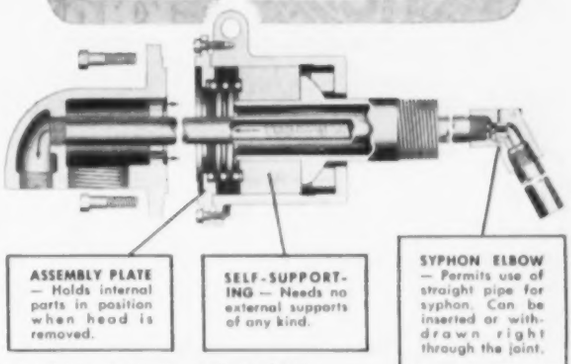
Johnson Joint

SELF-SUPPORTED TYPE

with SYPHON ELBOW


ASSEMBLY PLATE — Holds internal parts in position when head is removed.
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SYPHON ELBOW — Permits use of straight pipe for syphon. Can be inserted or withdrawn right through the joint.

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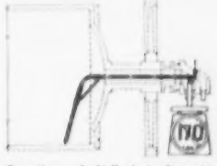
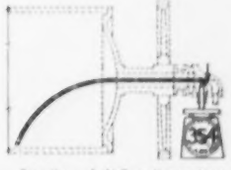


Reaction of 3/4" Auto-Flex in 48" diameter dryer. Very low leverage.



Reaction of 3/4" ordinary bent pipe syphon in 48" diameter dryer. Very high leverage.

A GLANCE

SHOULD CONVINCE

Ross Midwest Auto-Flex syphons have been on the market for years, thousands have been sold—and here's why.

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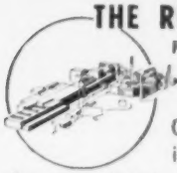

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